90365

SESSIONAL PAPERS.

VOLUME X. PART III.

90365

THIRD SESSION OF THE THIRD PARLIAMENT

OF THE

PROVINCE OF ONTARIO.

Session 1878.

JUL 1 1966
UNIVERSITY OF TORONTO

1091338

TORONTO:
PRINTED AND BOUND BY HUNTER, ROSE & CO.

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No. 22 ... Copies of all Correspondence between the Minister of Education or his Department, and the Publishing House of Adam Miller & Co., and all other publishers, and also with any member of the Central Committee, relating to the discontinuance of the *Journal of Education*, and the establishment and publication of the *Canada School Journal*, and the granting of any sum of money to the said Adam Miller & Co., connected with the last-mentioned publication, together with Copies of all Orders in Council passed relative to the *Journal of Education* and the *Canada School Journal*.

No. 23 ... Return of all Students attending the Agricultural College from the commencement of the Institution to the present time, such return to give the names of the students in full, together with the residence of their parents or guardians, and their profession, trade or occupation, also to show the present place of residence and occupation of all such students as shall have left the College; also, the length of time each student has remained in the Institution.

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Do University of Toronto.—The Bursar's Statements of Cash transactions, &c., for the year ending 30th June, 1877.

No. 36 ... Return of Receipts and Expenditures in detail relating to the Endowment Fund of the University of Toronto, and University or Upper Canada College, since date of last Return; also, a statement of moneys spent on additions or permanent improvements to the Upper Canada College buildings, and of moneys advanced to the Upper Canada College (if any), and on what security, in connection with said Institutions respectively during the same period; also, copies of all Orders in Council passed by the Government relating to said Institutions, and of the Reports referred to therein, since date of last Session; also, a statement showing the annual number of graduates of the University sent up from University College, and the annual number of pupils who have passed through each of the forms of Upper Canada College since 1867; and a Return of the residences of such pupils; also, a statement showing the number who have entered the University of Toronto, or other Universities.

No. 37 ... Copies of the Regulations adopted by the Executive Government, and of the Rules or Orders of the Superior Courts, respecting short-hand reporting in the Courts; also, a statement of the fees collected for short-hand notes of evidence during 1876 and 1877.

No. 38 ... Papers relating to the estate of the late Andrew Mercer.

No. 39 ... Report of the University of Toronto for 1876–7. *(Not Printed.)*

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No. 41 ... Report on the Inspection of Division Courts in County Towns during 1877.

No. 42 .. Correspondence between the Government of the Province of Quebec, and that of the Province of Ontario, in relation to the award of the Arbitrators of the 3rd of September, 1870, as to the adjustment of the credits, liabilities, properties and assets of the Provinces, pursuant to the British North America Act.

No. 43 ... Correspondence and other papers relative to the Government aiding the Townships of Anderson and Maldon, and the Town of Amherstburg, in the payment of the Railway Bonuses granted by these Municipalities to the Canada Southern Railway.

No. 44 ... Municipal Statistics of the Province of Ontario for the year 1876. *(Not Printed.)*

No. 45 ... Statement applicable to the Counties of York, Grey, Huron, Middlesex and Wentworth for the number of persons who during the year 1877 have received payment as Crown witnesses; also, the amounts paid; also, the number of such witnesses or persons who gave evidence in obedience to recognizances or subpœnas, but who have not received pay therefor during the same period, distinguishing those who reside in county towns or within one mile thereof. *(Not Printed.)*

THIRD ANNUAL REPORT

OF THE

ONTARIO

SCHOOL OF AGRICULTURE

AND

EXPERIMENTAL FARM,

FOR THE YEAR ENDING 31ST DECEMBER,

1877.

Printed by Order of the Legislative Assembly.

Toronto:
PRINTED BY HUNTER, ROSE & CO., 25 WELLINGTON ST. WEST.
1878.

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REPORT OF THE PRINCIPAL

OF THE

AGRICULTURAL COLLEGE

GUELPH,

FOR THE YEAR ENDING 31st DECEMBER, 1877.

Ontario Agricultural College.
Guelph, December 30th, 1877.

To the Honourable The Commissioner of Agriculture:

Sir,—I have the honour of submitting for your consideration the Third Annual Report of the departments under my charge of the Ontario Agricultural College and Experimental Farm for the official year beginning 1st November, 1876, and ending 31st October, 1877. And as we were not able to open this fall until the 1st November, I will include in the following summary all events up to the date of writing—30th December—in other words the whole of 1877, and the last two months of 1876. I say "the departments under my charge," and in order that these may be clearly distinguished allow me to ennumerate the various divisions under which the work of the Institution is carried on. There are six in number, viz.:—

I. Theoretical College Instruction.
II. Practical Farm Instruction.
III. Farm Management.
IV. Experiments.
V. Business Department.
VI. The Boarding House and College Buildings.

The second, third and fourth are under the direct charge and supervision of my colleague, Mr. Brown, and for an account of the years' operations under these three divisions, I would refer you to the able and exhaustive report of that gentleman which follows. The first, fifth and sixth belong to me, and as the report just mentioned is lengthy, I will, in order to make the aggregate number of pages an average, describe the year's work as briefly and succinctly as possible.

I. Theoretical College Instruction.

Before proceeding to describe the progress, allow me to specify clearly the ends that have been kept in view. We have sought always to remember that this is a technical Institution,

and that under this particular department we have "to train" young men in the theory of improved husbandry. We have not fallen into the error of giving a general education, or into the other extreme of teaching merely an art, but have sought to attain the mean between the two. And we have done this by taking as our central subject, agriculture in all its branches. And as the breeding, rearing and feeding of farm animals enter as important factors into that subject, the study of their structure and diseases forms the next important subject under the head of Veterinary science. Closely connected likewise, stands the study of the plant and soil as the instruments of production, and to understand them it is necessary to know something of Chemistry, Geology and Botany. And lastly, the student, in order to conduct his business and occupy his relative position in the community, must have a fair training in English and Mathematics. The college work proper was therefore divided into the four departments of:—

I. Agriculture.
II. Veterinary Science.
III. { 1. Chemistry and Geology.
{ 2. Natural History.
IV. English and Mathematics.

The work under those four departments had been going on for a year and a half when last I penned my report, and experience had shown that the study of each was perfectly compatible with the thorough acquirement of the necessary skill in the "art of husbandry." The first department was under the charge of Professor Brown; the second under that of Professor Grange, V.S.; the third was temporarily occupied by Peter H. Bryce, M.A.; and the fourth, with the last division of the third, was undertaken by myself. At that time we had forty pupils in attendance—representatives, as may be seen from the following table, of all portions of the Province and of different denominations therein:—

Counties.	*Pupils.*	*Counties.*	*Pupils.*
Dundas	1	Middlesex	1
Essex	1	Northumberland	1
Halton	2	Ontario	1
Hastings	3	Peel	1
Huron	2	Renfrew	1
Kent	2	Simcoe	1
Lanark	1	Wellington	5
Lambton	1	Wentworth	1
Lincoln	1	York	1

Toronto City	2
Kingston City	2
Ottawa City	2
England	4
Province of Quebec	1
Province of Nova Scotia	2

Religious Denominations.

Roman Catholic	2
Church of England	19
Presbyterian	14
Wesleyan Methodist	2
Baptist	2
Plymouth Brethren	1

THE FALL TERM.

The ground gone over in this term may be gathered from the following synopsis of the work of each lecturer:

SECOND YEAR.

Agriculture : Scientific :—

INTRODUCTION.—*History of Agriculture*—Ancient, mediæval, modern ; *Literature*—standard works—reports of Societies—periodicals : *Varieties of Farming*—dairy—stock ordinary mixed husbandry.

SOILS.—Origin, distribution, physical properties and classification of soils ; *Reclamation of lands*—forest clearing—stumping, stoning, fallowing, &c.

PREPARATION OF THE LAND FOR CROPS. Ordinary operations of tillage—ploughing, harrowing, cultivating, rolling—subsoiling, levelling—general cultivation most appropriate for the various kinds of soils.

SUCCESSION OF CROPS.—Importance and necessity of rotation—principles thereof—rotations suitable for various soils ; crops—root, forage, cereal —treated with reference thereto.

Veterinary Science :—

VETERINARY PATHOLOGY.—Osseous system—giving the nature, causes, spmptoms, and treatment of the various diseases of bone as splint—spavin—ringbone, &c.

Muscular system—nature—causes—symptoms—and treatment of flesh wounds, &c.

Syndesmology—nature—causes—symptoms—and treatment of bog spavin—curb, and other diseases of joints.

Planitar system—nature—causes—symptoms—and treatment of corns—sand crack and other diseases of the foot.

Odontology—describing the diseases of the teeth ; also the mode of determining the age of the animals of the same.

Chemistry:

ORGANIC CHEMISTRY.—Scope of the division of the science—organic compounds derived directly or indirectly from plants and animals—artificial formation of organic compounds—classification of organic bodies and their complexity—determination of the empirical and rational formulæ of organic bodies ; *Wood spirit* and its derivatives —methyl compounds—chloroform—acetic acid and ist compounds—alcohol and the process of fermentation—constitution of oils and fats—manufacture of soap and candles ; *starch and sugar*, and the other amyloids and glucoids—manufacture of sugar—tartaric, lactic, citric and malic acids. The flesh-formers or albuminoids and their congeners ; *Essential oils and resins*—varnishes—petroleum ; *Vegetable Alkaloids*—quinine—strychnia ; aniline dyes ; urea and uric acid ; *Animal Chemistry, Vegetable Chemistry.*

English and Mathematics:

Shakespeare's "King John." Mensuration.

FIRST YEAR.

Agriculture, Practical :

INTRODUCTION.—*History of Agriculture*—Ancient, mediæval, modern ; *Literature*—standard works—reports of Societies—periodicals ; *Varieties of farming*—dairy—stock —ordinary mixed husbandry.

SOILS.—Origin, distribution, physical properties and classification of soils ; *Reclamation of lands* —forest clearing—stumping, stoning, fallowing, &c.

PREPARATION OF THE LAND FOR CROPS.—Ordinary operations of tillage—ploughing, harrowing, cultivating, rolling—subsoiling, levelling—general cultivation most appropriate for the various kinds of soils.

SUCCESSION OF CROPS.—Importance and necessity of rotation—principles thereof—rotations suitable for various soils ; crops—root, forage, cereal—treated with referne thereto.

Veterinary Science:

ANATOMY AND PHYSIOLOGY OF THE DOMESTIC ANIMALS—Horse—hog—sheep—pig. Osseus system.

Chemistry

INORGANIC CHEMISTRY.—Scope of chemistry—atomic theory—chemical affinity—the *non-metallic* elements—oxygen—hydrogen—water—its nature—occurrence—functions—states, and decomposition—nitrogen—the atmosphere—ammonia—its sources and important uses—oxides of nitrogen—nitric acid and its importance to plants.

Natural History:

ZOOLOGY.—Nature of life—vital force—differences between animals and plants—differences between different animals—morphology and physiology—definition of species—origin of species—classification—characters of the general classes and orders of the *Invertebrates*, with examples.

English and Mathematics:

Review of past school work in English Grammar and Arithmetic.

The work of this term was closed by a written examination of three days' duration, held just before the Christmas vacation, when only four failed to pass; forty-two per cent. of the whole number took honours, and the great majority showed that good use had been made of the opportunity afforded in the College by the various lectures during this term.

THE WINTER TERM.

At the beginning of the work of the winter months, Mr. Bryce, who had lectured for six weeks in the fall, was appointed Lecturer in Chemistry and Assistant Rector, after an abortive attempt to obtain a suitable man to perform the duties of the Rector's position, which thence forward as previously devolved on myself. The usual routine was followed, and the amount overtaken in the several subjects may be judged from the following summary:

SECOND YEAR.

Agriculture:

GENERAL ECONOMY OF THE FARM.—Laying out a farm—formation and management of roads and lanes; *Fences*—varieties—position—mode of construction—materials—movable fences—hurdles, *Hedges*—varieties—methods of planting—after cultivation; *Buildings*—dwellings, out-buildings, stables, barns, sheds—principles of construction—plans and specifications.

GENERAL BUSINESS OF THE FARM.—Capital necessary—value and prices of land, stock, implements and improvements—value of all kinds of labour—making of inventories—keeping of stock and produce registers; *Markets*—economical laws regulating them—customs affecting them—modes of buying and selling—common laws relating to agriculture—relation of agriculture to other industries.

ARBORICULTURE.—Application to the American continent—different kinds of trees—occurrence, habits, uses, values—value of timber as a crop—raising of trees from the seed bed—what parts of the country should be planted—planting operations—transplanting large trees—enclosing and draining planted ground—management of trees with a view to shelter and economy.

MISCELLANEOUS SUBJECTS.

Veterinary Science:

Digestive system—nature causes—symptoms and treatment of spasmodic and flatulent colic—inflammation of the bowels—acute indigestion—tympanitis in cattle—impaction of the rumen, and many other common diseases.

Circulatory system—describing the diseases of the heart and blood vessels.

Respiratory system—nature—causes—symptoms—and treatment of catarrh—nasal gleet—roaring—bronchitis—pleurisy—inflammation of the lungs, &c.

Urinal system—nature—causes—symptoms—and treatment of inflammation of the kidneys, &c.

Nervous system—nature—causes—symptoms—and treatment of lock-jaw, string halt, &c.

Sensitive system—nature—causes—symptoms—and treatment of the diseases of the eye and ear.

Generative system—nature—causes—symptoms—and treatment of abortion—parturition—milk fever, &c.

Tegumental system—nature—causes—symptoms—and treatment of scratches—sallenders—mallenders—parasites—and other diseases of the skin.

Chemistry:

AGRICULTURAL CHEMISTRY.—History of the connection between agriculture and chemistry—the food of plants—the origin and nature of soils—analysis of soils—relation of different plants to the soil—composition of different crops—chemical changes during the growth of different plants—rotation of crops—manures, special and general—the composition of farm-yard manure—nature and analysis of guano and superphosphates—other manures—feeding of animals—foods—ingredients of foods—relation of increase to composition of food—economy of food.

PRACTICAL CHEMISTRY.—Chemical manipulation—the practical testing of waters, soils, foods, superphosphates, and other manures, and the preparation of the common gases, and the common acids.

Natural History:

ENTOMOLOGY.—Structure and physiology of insects—metamorphoses of insects—senses of insects—insects injurious to vegetation—to growing plants—to fruits—the apple, plum, pear, peach, small fruits, &c.

English and Mathematics:

ENGLISH.—*English composition*—the sentence—the paragraph—rhetorical figures—their use and abuse—species of composition—qualities of style—varieties of style. Essay writing—familiar and business correspondence. *Political Economy*—wealth—labour—capital. Production—distribution—exchange—government, and the position that agriculture holds in each—relation of agriculture to all the other industries of a nation.

MATHEMATICS.—*Mensuration*—the mensuration of every kind of surface, including the quantity of land cultivated by various machines—the surface occupied by different crops—the measurement of solids, including the contents of tanks, ditches, wells, manure heaps, walls, the materials for roads, timber, &c. *Surveying* in its commoner branches—fields surveyed with the chain and cross staff—heights and distances found by the use of the theodolite—levelling practised. *Book-keeping* with reference to all kinds of farm accounts and farm business, with the methods of keeping stock registers, sales, &c.

FIRST YEAR.

Agriculture:

BREEDING, REARING, AND FEEDING OF ANIMALS.—Horses suited for agricultural purposes—various breeds—breeding—feeding and general management: *Cattle*—characteristics of the various breeds—Shorthorns, Herefords, Devons, Ayrshires, &c.—methods of breeding—cross breeding—in and in breeding—pedigree system—rearing young stock—the fattening process—relation of food to increase—dairy management—butter and cheese management—the factory system—realization: *Sheep*—characteristics of various breeds—long wools, medium wools, short wools—breeding and management of ewe flock—winter and spring feeding—rearing of lambs—relation of food to increase: wool—texture, quantity and quality—dipping and salving—quantity maintained per acre: *Swine*—characteristics of the various breeds—breeding and management of sows—stores—fattening—relation of food to increase—bacon curing: *Poultry*—characteristics of the various breeds—general management.

IMPLEMENTS OF THE FARM.—Mechanical principles entering into their construction ploughs, harrows, cultivators—other tillage instruments—sowing machines, grass seed and manure distributors; mowing and reaping machines; haymaking and harvesting

machines; threshing and dressing machines; barn implements; waggons; sleighs; carts; straw cutters; turnip cutters and pulpers; implements used in stock feeding; common steaming; implements of less general use.

Veterinary Science:

Anatomy and Physiology of the Domestic Animals.—Horse, ox, sheep, pig muscular system; syndesmology; planitar system; odontology; digestive system; circulatory system; respiratory system; urinary system: nervous system; sensitive system; generative system: tegumental system.

Chemistry:

Inorganic Chemistry.—Sulphur and its compounds—sulphuric acid, its manufacture and uses—phosphorus—the agricultural importance of phosphoric acid—carbon, silicon, flint, sand, silicates, chlorine, bromine, iodine, &c.: *The Metals*—the alkalies, sodium, potassium, soda, salt, calcium, lime, plaster; lead and its compounds; iron—its ores and manufactures; arsenic—its compounds and detection; gold, silver, platinum, tin, &c., &c.; occurrence and uses; alloys.

Organic Chemistry.—Scope of the divisions of the science—organic compounds derived directly or indirectly from plants and animals—artificial formation of organic compounds—classification of organic bodies and their complexity—determination of the empirical and rational formulæ of organic bodies: *Wood spirit* and its derivatives—methyl compounds—chloroform—acetic acid and its compounds—alcohol and the process of fermentation—constitution of oils and fats—manufacture of soap and candles: *starch and sugar*, and the other amyloids and glucoids—manufacture of sugar—tartaric, lactic, citric, and mallic acids. The flesh-formers or albuminoids and their congeners: *Essential oils and resins*—varnishes—petroleum: *Vegetable alkaloids*—quinine, strychnia: aniline dyes; urea and uric acid: *Animal Chemistry. Vegetable Chemistry.*

Natural History:

Zoology.—Special study of *Infusoria*, *Scolecida*, *Annelida*, and *Insecta*. General characters of the *Vertebrates*—the various orders, with morphological and physiological distinctions of each, illustrated by common examples. Special study of the families of the *Aves*, containing the insectivorous birds, and the families of the *Mammalia*, containing all the various farm animals. Comparative anatomy and physiology of farm animals.

English and Mathematics:

English.—Study of the etymological, syntactical, and rhetorical forms of the English language—history of its formation—elements entering into it—its connection with other languages. Analytical study of Shakespeare's "Macbeth," and of extracts from some of the other English classics.

Mathematics.—*Arithmetic—Review of past work in arithmetic with special view to farm accounts*—tables of weights and measures—proportion—interest—discount—partnership—square and cube roots—*Mental Arithmetic.*

Book-keeping—With reference to all forms of farm business.

The work of this term was closed by a five days' written examination, held during the last week of March. This has now been made the closing Annual Examination of the scholastic year. The subjects upon which the examination was held can be seen by reference to Appendix C. They include all branches upon which lectures had been delivered, from the 15th April, 1876, until the 31st March, 1877. A fair idea of the treatment of the various subjects will be given by a glance at the papers themselves. The students who were successful in passing the examinations were arranged in three classes. Those who had answered over seventy per cent. of the questions were arranged in the first class, over fifty per cent. in the second, and over forty per cent in the third. The class list containing the names in order will be found in Appendix D. On the 30th day of March, the closing exercises of the College were held, at which the leading local agriculturists, friends from the town, and representatives of the press were present.

All expressed themselves as much pleased with the results of the year's College work, and the expression was in quite a few cases all the more acceptable, as coming from those who had been until then lukewarm friends of the Institution. Prizes were distributed to the first in first-class honours in each subject, and the School was declared closed until the 15th of April.

During this term, we were honoured with a visit from the members of the Legislature. As you formed one of the company on that occasion, and are fully acquainted with the objects and results of the visit, I need not say anything further than to express the satisfaction with which all the officers of the Institution witnessed the interest manifested in its welfare.

THE SPRING TERM.

We resumed work again on the 15th of April, when the place of our second year students and others who had left us was filled by selections both from the list on hand, and from names received in answer to an advertisement inserted in a few of the leading newspapers. Lectures during this term began at eight in the morning and ended at five in the evening in order to allow to the students the full benefit of all opportunities for outside practical instruction. This was accomplished by dividing the first year into two divisions, the first of which had the opportunity of receiving outside training in the forenoon, and inside instruction in the afternoon—the other *vice versa*. The subjects treated of during the term will be clearly seen by the following synopsis of each lecturer's work.

SECOND YEAR :

Agriculture, Scientific :

CULTIVATION OF CROPS.—The various crops : *Cereals*—wheat, oats, barley, &c. : *Leguminous*—peas, beans, &c. : *Roots*—turnip, carrot, potatoe, &c. : *Forage or Herbage*—tare, meerne, clover, grasses, flax, hemp—cultivation most appropriate for each ; *Seeds*—purchasing—testing—preparing—changing ; *Sowing*—kind and quantity of seed—method of sowing ; *After Cultivation—harvesting—consumption*, or preparing for market—cost of production—laying land down to grass—management of grass and pasture land.

IMPROVEMENT OF SOILS AND LANDS.—Improvement by thorough ordinary cultivation—subsoiling : *Draining*—its value—principles—various methods of draining—formation—levelling for—materials used in formation—cost and remuneration ; *Manuring*—farm-yard manuring ; Application, uses and properties of *artificial manures*—lime, plaster, salt, bones, superphosphate, nitrate of soda, &c., &c.

Veterinary Science :

GENERAL SUBJECTS.—The external form of the horse—thorough breds—half-bred hunters—harness animals—draught animals. The external forms of stock—breeding—selection of animals—crosses—transmission of hereditary diseases ; spavin—splints, side bones—ring bones—grease—blindness—roaring, &c., and their remedies—sterility abortion—general management to produce successful gestation—parturition—natural and præternatural presentations—their treatment. The management of young stock—weaning—feeding—methods of preventing blood diseases. Feeding animals—ventilation—water—stabling. The influence of climate upon animals.

DEMONSTRATION OF ANATOMY IN THE DISSECTING ROOM.

Chemistry and Cognate Subjects :

ANALYTICAL CHEMISTRY.—Qualitative and quantitative analysis, especially the analysis of soils, manures and farm produce.

METEOROLOGY.—*History and scope of meteorology*—weight of atmosphere—how ascertained—*barometer*—various kinds—manipulation ; *Temperature*—how observed and calculated—*thermometer*—varieties, Fahrenheit, centigrade, &c.—use of each—manipulation ; solar and terrestrial radiation—moisture of the atmosphere ; mists—fogs—clouds ; rain—snow—hail ; winds and storms ; miscellaneous—causes affecting the climate—influence of climate on vegetation.

Natural History :

Systematic and Economic Botany.—Special morphology and general classification of plants, flowerless plants—mosses—fungi, &c. ; flowering plants—characters of larger divisions. The orders containing important agricultural and economic plants—the cereals—grasses—roots with geographical distribution—agricultural seeds and fruits.

First Year.

Agriculture, Practical :

Cultivation of Crops.—The various crops ; *Cereals*—wheat, oats, barley, &c. ; *Leguminous*—peas, beans, &c. ; *Roots*—turnip, carrot, potatoe, &c. ; *Forage or Herbage*—tree, ucerne, clovers, grasses, flax, hemp—cultivation most appropriate for each ; *Seeds*—purchasing—testing—preparing—changing; *Sowing*—kind and quantity of seed—method of sowing ; *After cultivation—harvesting—consumption*, or preparing for market—cost of production—laying land down to grass—management of grass and pasture land.

Improvement of Soils and Lands.—Improvement by thorough ordinary cultivation—subsoiling ; *Draining*—its value—principles—various methods of draining—formation—levelling for—materials used in formation—cost and remuneration ; *Manuring*—farm-yard manuring ; Application, uses and properties of *artificial manures*—lime, plaster, salt, bones, superphosphate, nitrate of soda, &c., &c.

Veterinary Science :

Materia Medica.—Giving the preparation, actions, uses, doses, of over one hundred of the principal medicines used in Veterinary practice.

Chemistry and Cognate Subjects :

Chemical Physics.—Force and matter—correlation of force—properties of matter—gravity, cohesion, heat—light—magnetism—electricity ; forms of matter—liquids—solids—gases.

Geology.—Geological epochs—classification of rocks—structures—stratification—cleavage—foliation, dip, fault—denudation ; elevation and depression of land ; degradation of rocks by aqueous and atmospheric agencies—formation of soils—Canadian geology.

Physical Geography.—Connection between physical geography and geology—distribution of land and water—superficial configuration of Ontario—theory of wells and springs.

Natural History :

Botany.—*Structural and physiological*—internal structure of plants—cells and vessels—construction and development of the external parts of plants—root—stem—leaf—flower—seed—fruit—Physiology of cells and vessels—chlorophyll, starch, gum, sugar, crystals, &c.—movement of fluids and gases—nutrition and respiration—reproduction—methods of fertilization—hybridization—varieties—propagation—budding—division ; diseases of plants—smut—rust—mildew, &c.

The work of this Term was closed by a three day's written examination. The students attained a tolerably fair standing, but they invariably fail in succeeding so well in this term as during the previous two, principally because their minds are fully occupied with the outside training and work which, at this season of the year, are so important.

The Summer Term.

The school is closed for the two summer months of July and August, and the students spend their whole time—ten hours a day—at work or training in the fields, the yards, the garden or the shop. During this period I was busy sending out circulars to all parts of the Province. Some eight thousand were distributed during the summermonths, and by this means, many, especially, of the farming community become better acquainted

with our plans, systems, and aims. During those months, also, written circulars were forwarded to each County Council and each Electoral Division Agricultural Society giving them the *right* to nominate a young man from the County or Riding as a student, and circulars were also sent to each Township Council, and each Township Agricultural Society, giving them the *privilege* of making a similar nomination.

THE FALL TERM—1877.

Owing to the fact that our buildings were not ready for occupation we could not open until November 1st, though the majority of our old students were with us by the 15th of October. On the former date we resumed work with some eighty-four names on the roll. There have been a few changes and some new arrivals since, and the number on it, as will be seen by reference to Appendix A, is at the date of writing, eighty-seven. Two or three whose education was very deficient have on my advice gone back to the Public School again, and one promising young lad was taken from us by the hand of death at the end of the month of November. The disease—congestion of the brain—if not induced, was doubtless increased in severity by the fact of the young lad's earnest desire to stand well in his classes, and the close attention to his books consequent thereupon. Everything was done that skill or attendance could do, but all was in vain.

A glance at Appendix A will show the various parts of the Province from which our students are drawn. They are pretty equally distributed. A few came from outside, but almost all these are possessed of means and intend to purchase and settle in our midst. The following table will give an idea of the counties from which the pupils come, and of the religious denominations to which they belong :—

Counties.	*Pupils.*	*Counties.*	*Pupils.*
D. of Algoma	1	Lincoln	2
Brant	2	Middlesex	2
Bruce	1	D. of Muskoka	2
Carleton	2	Norfolk	2
Dundas	1	Oxford	4
Elgin	5	Ontario	5
Frontenac	4	Perth	3
Glengarry	1	Peel	1
Grey	3	Simcoe	2
Halton	2	Victoria	2
Hastings	2	Waterloo	3
Huron	1	Wellington	3
Kent	1	Wentworth	3
Lanark	4	York	8
Leeds	1		

Province of Quebec	4
Prince Edward Island	4
Nova Scotia	1
Britain	5

RELIGIOUS DENOMINATION.

Roman Catholic	2
Episcopalian	29
Presbyterian	26
Congregationalists	1
Canada Methodist	15
Primitive Methodist	1
Canada Baptist	6
Plymouth Brethren	2
Quaker	5

As the foremen outside were altogether unable to handle so many, the whole have been divided into two divisions—one receiving practical training outside in the forenoon, and the

other in the afternoon. It will be seen that there are four divisions in the work of the College proper. There is a second and first year, a special class consisting solely of winter pupils, and a preparatory class for those whose opportunities in educational matters have been deficient, but whose knowledge of farm operations is good. Perhaps the best method of showing clearly the every-day routine of College work is to give our time-table with which I shall close the year's record of work in the class-room.

SECOND YEAR.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
8—9	Study.	Study.	Mathematics.	Study.	Mathematics.
9—10	Mathematics.	English.	Mathematics.	English.	Mathematics.
10—11	Chemistry.	Meteorology.	Chemistry.	Meteorology.	Chemistry.
11—12	Agriculture.	Veterinary.	Agriculture.	Veterinary.	Veterinary.

FIRST YEAR—1st Division and Special Division.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
8—9	Study.	Zoology.	Study.	Zoology.	Study.
9—10	Chemistry.	Chemistry.	Chemistry.	Chemistry.	Chemistry.
10—11	Mathematics.	English.	Mathematics.	English.	Zoology
11—12	Veterinary.	Agriculture.	Veterinary.	Agriculture.	Agriculture.

FIRST YEAR 2nd Division.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
1.30—2	Mathematics.	English.	Mathematics.	English.	Mathematics.
2—3	Mathematics.	Zoology.	English.	Zoology.	Zoology.
3—4	Chemistry.	Chemistry.	Chemistry.	Chemistry.	Chemistry.
4—5	Veterinary.	Agriculture.	Veterinary.	Agriculture.	Veterinary.

FIRST YEAR—Special Division.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
1.30—2	Study.	Botany.	Study.	Materia Med.	Study.
2—3	eology.	Materia Med.	Geology.	Botany.	Geology.

SCHOOL PREPARATORY DIVISION.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
1.30—2	Study.	Study.	Study.	Study.	Study.
2—3	Arithmetic.	Arithmetic.	Arithmetic.	Arithmetic.	Arithmetic.
3—4	Grammar.	Grammar.	Grammar.	Grammar.	Grammar.
4—5	History.	Geography.	History.	Geography.	History.

ALL THE DIVISIONS.

P. M.	
7—9	Study in Class-room under charge of the Rector.

In forwarding the interests of the College all the teachers have worked together with the utmost harmony, and not a single jar has occurred to mar the progress of the theoretical instruction in the class-room.

The Boarding-house and College Buildings.

It is difficult practically to separate the Boarding-house from the College itself; but theoretically it can easily be done. The former is, as its name implies, a residence for the students. As such, it is under the charge of myself; who am known, in that connection, as the Rector. He has charge, in that capacity, of the internal economy of the Institution, sees that the building is properly warmed and ventilated, that cleanliness, order, and regularity are enforced, and furnishes the supplies. He presides at meals, conducts morning and evening prayers, and has special charge of the moral training of the pupils. In other words, the Boarding-house is to be made as much as possible a home, of which the Rector is to be the head. Under him is a Matron, who has direct care of all the usual domestic affairs of the Boarding-house, oversees the work of the servants who are under her, takes charge of all the dormitories, looks after any who may be unwell, and in every way possible attends to the comfort of the students. Such is the arrangement—now as to the carrying of it out.

At the beginning of the scholastic year our former Matron resigned, in consequence of her husband receiving an appointment at Ottawa. In her place, Miss Dunn, of the Queen's Hotel, in Toronto, was appointed. The appointment has proved a most excellent one, the

lady mentioned being an efficient housekeeper, and under her able and economical management, all household affairs have moved with undeviating regularity and punctuality, whilst she commands from all the students the respect and consideration commensurate with her anxiety for their comfort and their health. The rules and regulations relating to the Boarding-house, will be found under the heading of "General Regulations," in Appendix B. The conduct of the pupils during the year, has, on the whole, been excellent. Difficulties to be settled by tact, or even by severe measures, there have been, and always in a place like this there will be, but violation of rules and regulations have been few and far between. Connected with the Boarding-house is a reading room. It has been supplied during the year with the following papers and periodicals, partly by the Literary Society which the resident students have formed amongst themselves:—

Toronto *Globe* (daily),
" *Mail*,
Guelph *Mercury*,
" *Herald*,
Canada Farmer,
Farmers' Advocate,
American Agriculturist,
Chicago *Live Stock Journal*,
Scientific American,
Mark Lane Express,
North British Agriculturist,
Irish Farmer's Gazette,
Country Gentleman,
Canadian Illustrated News,
Harper's Monthly,
Grip,

And the following Periodicals are placed each Sabbath on file:—

Sunday Magazine,
Good Words,
Quiver,
Family Treasury,
Leisure Hour,
Sunday at Home.

Although I may not be the proper person to judge, yet I cannot refrain from expressing my opinion that we have succeeded in making our Boarding-house, as far as circumstances would permit, a veritable home for the residents, surrounding them with the necessary restraints, and bringing to bear what influences we could, in order to train them up in manliness and virtue. Religious instruction, in the technical sense of the term, lies, of course, outside of our sphere, but all the residents have been constant attendants at the churches of the denomination to which they respectively belong, whilst the clergymen of those denominations are afforded every facility of visiting, becoming acquainted, and spiritually caring for the young men who have placed themselves under their pastoral charge. I conduct a Bible-class each Sabbath afternoon, which is open to all the students who desire to attend.

A large addition has this year been made to our Boarding house, giving us now accommodation for eighty students. North and north centre wings have been added to the main College building. The former is 40 x 50 feet deep, three stories in height. The first two floors are intended for a private residence, whilst the mansard floor is used as dormitories. The north centre wing is likewise three stories in heighth, 12 x 53 feet. The ground floor is used as a dining-room, and the other two as dormitories. A full description will doubtless be found in the Report of the Public Works Department, under the control of which it has been erected

III.—The Business Department.

As Bursar, I perform the duties of this department. The regular office work of the Institution is increasing in volume. There are the regular accounts, and the farm accounts with the books requisite for each; and besides these there is a regular account with each pupil. Some 1657 letters alone were sent out during the year. Besides these, 8300 circulars, similar to that found in Appendix B, and 2000 of last year's reports were distributed, principally to leading farmers, in each Township of the Province. Circular letters were also sent to each County Council, to each Township Council, to each Electoral Riding Agricultural Society, and to each Township Agricultural Society. The effect will doubtless be to make us better known to all classes of the community. We made an attempt also to establish

A Statistical Bureau.

The objects of this proposal were stated in the last Annual Report, as follows:—

"A fair amount of crop and other statistics relating to agriculture are at present collected by the Secretary of the Bureau of Agriculture, and published in the Commissioner's Annual Report. My proposal is to use somewhat the same agencies, but extend the sphere of operations and the subject matter of the statistical reports, so as to include the whole Province and everything relating to agriculture therein, and publish reports monthly, or every two months at the farthest. In other words, I recommend that in this Province we follow, with such variations as our circumstances require, the plan adopted by the Department of Agriculture at Washington. The benefits that would accrue to the agricultural and all other interests, by adopting such a course are evident; and the reflex benefits to the Institution would not be few in number."

In order to do the best possible with the means on hand, circulars were sent to the Warden and the Clerk of each county, and the Reeve of each township, asking their co-operation in preparing a list of reliable correspondents from each township of each county in the Province. In almost every case the response was most favourable, and the clerks especially put themselves to considerable trouble in assisting us. The Reeves of 203 townships sent in on an average the names of some twenty influential farmers in each of their separate localities, and thus we have a list of 4109 correspondents. This was all that could be done this year as our means were altogether too small to dream of publishing reports. The little that was done, however, has shown that the scheme, if properly carried out, would be a very popular one, and it is to be hoped therefore that the appropriation this next session will be sufficient to enable something to be done in the way of publishing.

The Financial Department.

This will be found in the several tables of Appendix E. The first table shows the amount expended for the eleven months ending 30th Nov., 1877, out of the appropriation granted for that year. The second table shows the estimated amount required for the next year, 1878. The third shows in abstract form the farm income and expenditure for the financial year beginning 1st November, 1877; whilst the fourth shows the estimated farm income and expenditure on maintenance account for the same period of 1877–8.

The total amount granted on maintenance account was $17,360; and by a glance at table I. it will be seen that $15,397.88 of this has been spent, leaving $1,961.12 to cover all expenses on this account for December—a sum more than sufficient for the purpose, as my books, just closed, show a balance of over $80 to my credit, from which will be subtracted a few sums paid direct from the Treasury Department, the exact amount of which I do not of course know, but certainly not above $70. By the practice of rigid economy during the first part of the year, we have been able without exceeding our appropriation to provide for double the number of students during the remaining portions of it. The only two items that require explanation are the one of "Experiments," and the other of "Printing, Stationery, &c.," as these both exceed the separate sums set apart for the specific purposes. The first has been caused by the extra expense entailed in looking after the Centennial Seeds, which was not known at the time of the Estimate, and the second has been occasioned by the extra expense incurred in printing 2,000 reports and 10,000 circulars, which expense I should have foreseen, but did not. I hope that as the total expenditure has been kept below the total income, this will be excused. All the items under Capital Account with the exception of that referring to the Library, Laboratory, and Museum are entirely beyond my control, the money being spent by the Professor of Agriculture and Farm Superintendent, under whose report will be found a satisfactory account of their expenditure. Of the amount granted for the former purpose, some four hundred dollars have been expended in the purchase of leading agricultural works for the Library, but as the various Herd Books are included in that list, it will be seen by those who have an acquaintance with the matter, that little was left for the purchase of books properly so called. Having obtained duplicates of the agricultural seeds that were exhibited by Ontario at the Centennial, as well as a few of the samples of exhibits of other countries purchased by the Government, cases have been made and the whole placed in our museum. The model of a horse and cow, besides other models, were purchased at

Philadelphia by Dr. May, I suppose at the order of the Government. These were expensive, and absorbed a large portion of the fund, so that the greater portion of the grant has gone this year into the museum.

Table B is an estimate of expenditure for the year 1878. The items under "Food" and "Household Expenses," have been compiled by taking the sum expended under each heading for the previous twelve months, in a household of 46 persons, making a *pro rata* calculation, and then the estimate for a household of 96 persons. The only item above the margin is that of "Fuel," to which has been added a sum sufficient to cover the expense of heating the house of the Professor of Agriculture and Farm Superintendent. Two items which appeared last year have this time been omitted. These are "Statistical Bureau," and "Bonus to Pupils." The former should come more properly under Section VII of the Estimates—"Agriculture, Arts, Literary and Scientific Institutions," than in the estimates for this Institution. The second, by our new system, is done away with, and the bonus will henceforward be on the other side, until gradually the pupils pay at least the most of the cost of their own board. That is the end we must here aim at, and it will be attained too, but only now by a gradual process, as the granting of a bonus established that most dangerous of all things —a bad precedent.

In the column of "Salaries and wages" it will be noticed that the housekeeper's staff of servants is increased, owing of course to the increase to the size of the building and the number of pupils in attendance. The least possible number compatible with cleanliness and efficiency is asked for. It may be possible to pay the wages of the servants with sums received from the students for board, but it would be hazardous this year to risk it. Should the end of the year find this the case the money can be refunded, but meantime it had better go into the estimate. It will be seen, too, that an addition of $200 is asked to the salaries of the "Professor of Chemistry" and "Farm Foreman" respectively. It is, in my judgment, absolutely necessary, not only as an encouragement to officers who have succeeded well in their respective departments, but as an act of justice to the departments themselves. The Professor of Chemistry lectures to the several years on the subject of Chemical Physics, Inorganic, Organic, Agricultural, and Analytical Chemistry, Geology and Meteorology. He has charge, besides, of the Laboratory, and is expected to train his second year students in Practical Chemistry, and his third year students in the qualitative and quantitative analysis of soils, foods, and manures. He must likewise be a practical chemist and make any such analyses that may be required or his time permit. The scientific attainments therefore that he puts to use are equal to those of the Professors of Chemistry in any of the colleges, and far superior to those of any Science Master in our High Schools, Collegiate Institutes, or Normal Schools. There are two classes of men attainable for the position,—the first from the older countries, the second from our own. The former cannot be procured for less than £400 sterling per annum. The latter can be obtained as graduates of our universities who have followed a scientific course therein, but they must train themselves for this special work here. The salary offered will bring these, but it will not keep them. Were encouragement given—say in a graduated increase proportionate to success.—any such young man might be induced to devote his abilities in a direction hitherto not followed in the Province, and explore ground where discoveries of great value to agriculture are likely to be made. The only other of our public institutions with anything of a similar nature attached are our Provincial Normal Schools. The Science Masters there do not require to use one-third of the scientific attainments of the Professor of Chemistry here, and they receive $500 per annum more. What I ask for is a graduated increase of $200 until at least that point is reached. The second increase is under the department of the Institution controlled by Mr. Brown who has doubtless given his reasons for recommending it. It may not be out of place, however, for me here to say that the occupant of the position has well earned the right to any increase, and you will allow me farther to say that the salary asked will only place him on a par with others holding similar positions on equally large farms in the Province, to say nothing of the responsibility entailed in the oversight of the work in the field and yards of eighty students. And allow me in conclusion to say on this matter of increase that it will be only on the ground of supporting the dignity and success of the Institution that either my colleague or myself will be heard, and our words will partake, not of the clamor of the friend, but of the decision of the judge confidently handing that decision to the court of appeal.

In Table III of Appendix E, is given an abstract of the Farm Income and Expendi-

ture for the financial year beginning 1st November, 1876, and ending 31st October, 1877. Divested of all details, the balance sheet stands somewhat thus:—

Cash receipts from all sources.....	$5,217 51
Cash expenditures	4,714 36
Balance on hand.....	$503 15

Besides this balance, which is in the shape of notes payable on the 4th of April next, there has been, it will be noticed, about four hundred dollars worth of stock added to our herds and flocks.

IV. Recommendations.

In these, I will confine myself only to my own departments, and then only to general questions. In the first place, the accommodation is still too limited. During 1878 and the Fall Term of 1877, I have filed 154 applications. And as the Institution becomes more generally known, as it is, and not as it was represented at the last general election, it is every way likely that the number of applications will never fall below, say one hundred and twenty in any one year. We have room for eighty, but the accommodation for the other forty can easily, and at very little cost, be obtained. Let the space between the main building and the school be filled up with a south centre wing, and the necessary space is at once obtained, and an ugly gap taken away; and as there are are only two walls to build, the cost will not exceed $5,000. If the centre could be raised another story and a tower placed in front—and both would cost only $3,000 more—there would be a fine college with a frontage of 240 feet, an average depth of 45 feet, having accommodation for all the offices, a residence for the President, three class-rooms, a library, reading-room, museum, and ample accommodation for 120 students. Surely a sum less than one-tenth of what will be spent at two of our asylums—a sum of $8,000—will never be grudged when such a result can so easily be obtained. Of course I am not now speaking of the revote of the remainder of the $25 000 voted last year, which is still unspent. That still stands for purposes sorely needed. Ten servants and the matron are cooped up in six rooms each 10×12, with eight feet ceilings; our kitchen, pantries, laundry, and scullery, built for thirty students, are all too small now with three times the number, and a storehouse is wanting altogether. These should all have been added to this year, and only the barest necessity compels us to work away with them as they are for this winter. Besides these important additions, a complete heating apparatus will need to be put in during the ensuing season. Sixteen coal stoves, with a small ten-horse engine, and badly arranged and badly laid steam pipes laid from it to one-sixth of the building, is an arrangement at once dangerous and wasteful. And add to this, absolutely no appliance for putting out any fire but a couple of small fire extinguishers and buckets of water here and there—no tanks, no hose, and little water—and it will at once be seen that before the additions to the back buildings are completed, and a heating apparatus with ample tanks attached put in, the most—indeed the whole—of the $10,000 or $12,000 left from the first vote will have been gone. And these latter must be built. Therefore it is that I ask for $8,000 additional to increase our accommodation to one hundred and twenty.

I will trouble you with but a couple of other recommendations and they were both made by myself last year. Allow me to quote from that report:—

"Again, it is advisable to look forward to the time when the Institution can stand on its own footing. It is easily conceivable that when well established, the students will be readily willing to pay for board and washing if tuiton is free, and thus a great part of your Maintenance Account may be abolished. And it is positively certain that when put into shape, the Farm will pay its own expenses. When these branches of expenditure are struck off, there remains but the salaries of the staff. In order for ever hereafter to meet this charge, I think it would be highly advisable to set apart six townships on the proposed line of the Canada Pacific Railway, through Ontario, as a land endowment for the benefit of this Institution. From the time the Railway was under way, these townships would pay the salaries of the staff. This would be but following the practice of the United States, as the land scrip there, forms a large part of the revenue of each Agricultural College. Were this carried out, at the end of the first ten years of the existence of the College, it would, with the

exception of the cost of experiments and permanent improvements in the shape of buildings, be self-supporting."

"The second suggestion that I would make regarding the School is, that it should be affiliated to the University of Toronto. In offering such a suggestion I would disclaim any intention of making the Institution a department of any university. As the term is usually understood, that could only be effected in this instance by using the teaching of University College. With that educational Institution the proposal has nothing to do. It is with the University of Toronto, as an examining body, that I would desire you to deal. In the first place, then, it is highly advisable that the students who complete their course with us, should receive not only a certificate of attendance, but a certificate or diploma which would testify that they had studied successfully the various subjects embraced in the curriculum. Such a certificate, diploma, or degree, is given in every similar institution. Now the more weight this certificate can carry, the greater value will it be to the graduates, and the greater will be the ultimate advantage to the Institution. But that has been too recently established, and is too little known for any certification by its masters to carry the weight, the value, or the influence, that a similar certificate from such a body as the Senate of the University of Toronto could command. Again, whilst this Institution might be called a "Public Institution," it is, unlike all other Public Institutions, essentially an educational one. But it stands outside of our present educational system, for its ends are special and its training technical. The more, however, all our educational institutions are brought into harmony, the better will it be for the success and stability of each. To this rule we are no exception. We have at present no status in educational circles, and are consequently without the reflex influence which the possession of it commands amongst the classes we more especially desire to reach. Such a status would be obtained, and our Institution placed in harmony with our whole educational system, by affiliation with the University of Toronto. Still further, it is a well-established rule that certificates of qualification should never issue on the results of examinations conducted by the teachers. That rule will be followed in the event of the course suggested being adopted. And lastly, in order to give us the power to grant diplomas or degrees, we would require a charter from Parliament. The time may come when this Institution, standing at the head of affiliated agricultural schools in the Province, would have a legitimate right to make such a request. But that time has not yet arrived, and there are slight signs of its dawning on the horizon. Instead of Parliament increasing the number, its true policy is to buy up existing charters, and make one degree-granting body for the Province. In view of the soundness of that policy, it would be an evidence of legislative folly to ask for this place such a power; and a sign of legislative wisdom to put it in affiliation with that body, which under whatever name.—University of Toronto, or University of Ontario,—is destined to be the only degree-granting body in the Province. Many other arguments might be adduced, but these will be sufficient to show the reasons for, and the ends to be attained by, affiliation with the University of Toronto."

Taking then a retrospective view of the year's operations, we may conclude on the Emersonian theory of progress, that we have advanced, that revolving in our smaller circle for the last two years, we have now broken the circumference and emerged into a still larger and wider, whose area is greater and whose circumference extends farther than ever before. We have during the past year become better known throughout the country, and I hope better appreciated. In the College proper we have increased our accommodation, doubled the number of our students, and yet have to shut the doors to half as many more who cannot get in. We have taught to those students, and taught thoroughly, the subjects laid down in the curriculum,—Agriculture and the elements of the allied sciences of Chemistry, Botany, Zoology, Entomology, Geology, and Meteorology. We have instructed them likewise in Veterinary Anatomy, Physiology, and Pathology, English and Mathematics. Turning to the farm, we have taught them the various operations of husbandry, and that not by theory but by downright, hard, practical, every-day work. We have conducted thereon a whole series of experiments, and are now ready, by fields prepared for the purpose, to quadruple the number of them. We have tried 94 varieties of Fall Wheat, and 139 of Spring; 13 of Barley, and 48 of Oats; 19 of Peas, and 42 of Corn; 15 of Grasses, and 7 of Clovers; 10 of Potatoes, and 8 of carrots; 13 of Mangolds and 22 of Turnips. There have been tested seven different modes of cultivation, and fifteen kinds of manure, and we have tried the effects of many different kinds of food in fattening the various classes of animals. The account of the suc-

cess of each of those experiments will be found in the preceding pages. And we have gone on at the same time with the improvements necessary to bring the farm into the shape of a model farm. There have been built 710 rods of fencing, and 730 rods of drains have been laid. Twenty-seven acres of wild natural pasture land have been brought under the plough, and sixty-five acres, foul with weeds, have been thoroughly cleaned. A greenhouse has been erected, a garden put into regular rotation, roads and walks graded and gravelled, shrubberier and hedges planted ; and all this has been carried on and completed, besides performing the regular work of the farm. In whatever direction therefore it is considered, in teaching, in experimenting, or in improving, I repeat that, taking a retrospective view of the year's operations, progress—indisputable progress—has been made.

But it may be asked, is the "Farm" ever going to pay? As a farm, I answer unhesitatingly it ever will, just the same as any other farm well managed will pay. But if by the question is meant the College as well as the Farm, I simply answer by asking what College ever did pay except in the education of its pupils? Do our Public Schools, our High Schools, our Collegiate Institutes, Upper Canada College, any of our colleges or universities pay in the technical sense of that word? The expenses of the staff and their buildings are always a charge upon revenue, and it wil' ever be the same here. And again it may be asked, what success has attended the Institution, and what greater success may be expected from it? The answer to this question must entirely depend on the standard of success formed in the mind of the questioner. The objects aimed at by the institution, are to "train young men in the theory and practice of husbandry," and to "conduct experiments tending to the solution of questions of material interest to the agriculturists of the Province." The instrument at hand was a farm of 550 acres. Out of that was to be made a model farm, an experimental farm, and a College; in which the teaching was to be co-existent and co-temporaneous with both of the former. At the end of three years, for it is nearly that since we really began, where do we stand? In the first place—midway in the work of making a model farm. One hundred and twenty-six acres of natural pasture land have been brought under the plough, and forty-seven still remain to be broken up. Half the farm has been underdrained, and the half of the remainder requires it. A little over nine hundred rods of fencing have been built, and seven hundred more are needed. Fields have been laid out, others straitened, many levelled and cleaned, whilst roads to them all have been made or improved. Thirty acres in front have been placed in shape, as the horticultural section of the farm, with garden lawn, trees, shrubberries, flower-beds and borders, forcing houses, green houses,—in a word, all the usual divisions in that department. In the second place, other forty acres have been laid off as the experimental section of the farm, and a glance at my statements in the last paragraph, and at the Report of the Professor of Agriculture for this year and last, will show what has been done towards furthering this important object of our establishment. In the third and last place, about half the buildings belonging to a regular college have been erected, a staff of teachers appointed, a curriculum of study laid down, and for the last three years that course has been faithfully carried out. Since the opening of the institution one hundred and eighty-eight students have enrolled their names as pupils, and have remained with us for a shorter or longer period of time—a few for the regular two years, but the great majority for an average of twelve months. Of the number mentioned, eighty-seven names are now on our roll ; and of the remaining one hundred and one who have left our halls, seventy-one are known to be following agriculture or horticulture as an occupation, four are completing their course in Veterinary Colleges, eighteen are known not to be following either occupation, and of the remaining eight we have no trace. Sixty-four of the present eighty-seven are from the farm or garden directly, and all, the remaining twenty-three as well, have signified their intention of making either agriculture or horticulture their life work. Such are some of the data whereby present success or failure may be judged, and we leave them in the hands of any impartial and honest critic, knowing full well the character of the decision that will be rendered. And I see no reason why the future should not be more successful than the present. Should the same measure of support at present granted by the representatives of the people be continued, in other two years the farm will be a model farm, a system of experiments, popular, practical, and scientific, will be established, our College building, solid, massive, and imposing, will be finished : the College course will be as thoroughly systematised in its practical training as it is at present in its theoretical class-work ; and we will be doing what no other educational institution in the Province can attempt—send-

ing eighty per cent. of our graduates back with a fair amount of higher education to be classed amongst the most intelligent producers from the soil And should the suggestions I have had the honour to make be carried out with the payments by the students and from a revenue fund a large portion of the objectionable part of our expenses will be abolished, and we will take rank no longer as a "Public Institution" in the same category as Hospitals and Asylums, but will have attained the position of one of the most prominent of our Provincial educational institutions, coming after, if not before, our Normal Schools, and looked upon with pride as one of the most promising of all the Technical Colleges affiliated to our Provincial University. Such can be our near future, the horizon that bounds the view. What may be beyond I know not, nor do I care to know, for I am certain that when it is reached a wider area stretches far in the distance. But of one thing I am sure, that if during the last two decades of this century the inhabitants of this Province with an impoverished soil under the full operation of the law of diminishing return, with the want of accumulated individual capital, and under a system of peasant proprietorship, are going to place our agricultural exports on which at present the national wealth depends, on the world's market, in competition with those of other countries, whose capital is abundant and whose labour supply is never limited and always cheap, then such competition can only be rendered successful by the increase throughout the great body of producers of the general intelligence and the special agricultural knowledge and skill which is at present possessed only by those who form the van-guard of the farming community of the Province. Within that educational sphere, in the not distant future, lies the work of this Institution, and within that sphere I am confident of its success.

I have the honour to be, Sir,
Your obedient servant,
WM. JOHNSTON,
President.

APPENDIX A.

LIST OF MATRICULATED AND NON-MATRICULATED STUDENTS.

WINTER SESSION, 1877-78.

Division I.—Second Year.

No.	Name.	P. O. Address.	County.
1.	Carpenter, Ernest H	St. Catharines	Lincoln.
2.	Crompton, Edward	London	England.
3.	Davis, Charles J	Pembroke	Wales.
4.	Farlinger, William K.	Morrisburgh	Dundas.
5.	Graham, David	Wallbridge	Hastings.
6.	Logan, Thomas	Guelph	Wellington.
7.	Naismith, David	Mount Forest	Wellington.
8.	Stewart, William	Hornby	Halton.
9.	Shaw, William C	Thamesville	Kent.
10.	Warren, John B	Oshawa	Ontario.

Number of Second Year Students 10

Division II.—First Year.

No.	Name.	P. O. Address.	County.
1.	Ash, William	St. Catharines	Lincoln.
2.	Awty, Foljambe	Mitchell	Perth.
3.	Bell, Andrew	Montreal	Quebec.
4.	Bratton, John B	London	Middlesex.
5.	Cann, Mark	Huntsville	Muskoka.
6.	Carey, Edward	Charlottetown	P. E. Island.
7.	Clutton, John G	Goderich	Huron.
8.	Chase, Oscar A	Sparta	Elgin.
9.	Dick, Arthur	Toronto	York.
10.	Dickson, James D	Pakenham	Lanark.
11.	Dickson, Samuel	Pakenham	Lanark.
12.	Dunkin, Thomas L	Norwich	Oxford.
13.	Elliott, John	Onondaga	Brant.
14.	Elwell, William	Montreal	Quebec.
15.	Ferguson, John	Onondaga	Brant.
16.	Hartshorne, Lawrence	Hamilton	Wentworth.
17.	Jopling, William	Avonback	Perth.
18.	*Knight, John**	Souris	P. E. Island.
19.	Mann, John	Granton	Middlesex.
20.	McFarlane, Norman	Actonvale	Quebec.
21.	Moncrieff, Edward	Orillia	Simcoe.

* Deceased.

No.	Name.	P. O. Address.	County.
22.	Muntz, Herbert A	Alport	Muskoka.
23.	Lawson, Bruce A	Halifax	Nova Scotia.
24.	Nicol, Arthur	Cataraqui	Frontenac.
25.	Paige, Arthur	Sparta	Elgin.
26.	Randall, John	Newmarket	York.
27.	Robertson, John	Montreal	Quebec.
28.	Robinson, Charles B	Middlemarch	Elgin.
29.	Stover, Francis	Norwich	Oxford.
30.	Tate, William	Belleville	Hastings.
31.	Wilkinson, Peter	Cambray	Victoria.
32.	Wilkins, Mark	Galt	Waterloo.
33.	Willson, John D	Oakville	Halton.
34.	White, George P	Clarksburg	Grey.

Number of First Year Students 34

Division III.—Farm Preparatory Year.

No.	Name.	P. O. Address.	County.
1.	Barclay, James T	Listowel	Perth.
2.	Bonnard, Lewis	Hamilton	Wentworth.
3.	Brecken, John F	Charlottetown	P. E. Island.
4.	Exham, Francis	Monkstown	Ireland.
5.	Greig, George H	Toronto	York.
6.	Gillespie, George H	Hamilton	Wentworth.
7.	Hay, Alvin R	Toronto	York.
8.	Hopkins, John G	Lindsay	Victoria.
9.	Jenkins, Lewis L	Charlottetown	P. E. Island.
10.	Simmers, Herman J	Toronto	York.
11.	Stirling, John A	Kingston	Frontenac.
12.	Stelfox, John W	London	England.
13.	Warren, William	Oshawa	Ontario.
14.	Wilson, William	Kingston	Frontenac.

Number of Farm Preparatory Year Students 14

Division IV.—School Preparatory Year.

No.	Name.	P. O. Address.	County.
1.	Austin, Clements B	Ottawa	Carleton.
2.	Bawden, William G	Kingston	Frontenac.
3.	Boomer, Albert J	Hawkesville	Waterloo.
4.	Butterfield, Jesse S	Norwich	Oxford.
5.	Bristow, William	London	England.
6.	Carney, Richard	Sault St. Marie	Algoma.
7.	Cowan, Alexander	Ottawa	Carleton.
8.	Chalmers, Henry D	Smith's Falls	Lanark.
9.	Fewster, Richard	Horning's Mills	Grey.
10.	Heaslip, Francis	Toronto	York.
11.	Hodgson, Francis	Horning's Mills	Grey.
12.	Jones, Jonas	Gananoque	Leeds.
13.	Mills, Francis	Sparta	Elgin.
14.	Moore, Murray A.	Norwich	Oxford.
15.	Robertson, Francis	Toronto	York.
16.	Toohey, Patrick	Chepstow	Bruce.
17.	Willis, John	Whitby	Ontario.

Number of School Preparatory Year Students 17

DIVISION V.—SPECIAL COURSE—FIRST YEAR.

No.	Name.	P. O. Address.	County.
1.	Clark, James	Montague	Lanark.
2.	Duncombe, Orlando R	Waterford	Norfolk.
3.	Brown, Leopold A	Alymer	Elgin.
4.	Fyfe, Alexander	Guelph	Wellington.
5.	Hewson, James	Tullamore	Peel.
6.	Lackner, Franklin	Hawkesville	Waterloo.
7.	Major, John S	Whitevale	Ontario.
8.	Major, William H.	Whitevale	Ontario.
9.	McLennan, Roderick	Riviere Raisin	Glengarry.
10.	Shand, Charles H	Port Dover	Norfolk.
11.	Toole, Lewis	Mount Albert	York.
12.	Warnica, Angus W	Painswick	Simcoe.

Number of Students in		Division I.—Second year	10
Do.	do.	Division II.—First year	34
Do.	do.	Division III.—Farm preparatory year	14
Do.	do.	Division IV.—School preparatory year	17
Do.	do.	Division V.—Special course	12
		Total number of Students	87

APPENDIX B.

CIRCULAR OF THE ONTARIO AGRICULTURAL COLLEGE

FOR THE

SCHOLASTIC YEAR, 1877.

STAFF.

(*a*) WILLIAM JOHNSTON, M.A., *President, Secretary and Bursar.*
(*b*) WILLIAM BROWN, ESQ., *Professor of Agriculture.*
(*c*) PETER H. BRYCE, M.A., *Professor of Chemistry.*
(*d*) E. A. A. GRANGE, V.S., *Professor of Veterinary Science.*
JAMES STIRTON, *Instructor in Farm Department.*
JOHN F. BARRON, *Instructor in Horticultural Department.*
JAMES MACKINTOSH, *Instructor in Mechanical Department.*

INTRODUCTION.

The Institution, known as the "Ontario School of Agriculture and Experimental Farm," is situated about a mile to the south of the town of Guelph. The Farm consists of 500

(*a*) Gold Medallist of the University of Toronto.
(*b*) Gold Medallist of the Highland and Agricultural Society of Scotland.
(*c*) Gold Medallist of the University of Toronto.
(*d*) Formerly Lecturer on Anatomy in the Ontario Veterinary College

acres, about 400 of which are cleared, and is composed of about every variety of soil. It is in the centre of an extensive agricultural district—one unrivalled in the Province for the raising of stock. Readily accessible by rail from all parts of the Province, in close proximity to a town at once one of the finest grain and stock markets of Ontario—noted besides for the strong moral and religious tendencies of its people—no site could have been found more eminently suited for the establishment thereon of such an Institution.

Immediately upon taking possession, the Government appointed a Commission to enquire and report regarding "the manner of adapting the said farm and management and control thereof to the purpose of a Model and Experimental Farm." A few extracts from the Report of this Provincial Farm Commission will show clearly the basis upon which the Institution is at present established :

"The name of the Institution should be 'The Ontario School of Agriculture and Ex-"perimental Farm.'

"The objects of the Institution should be—First, to give a thorough mastery of the "practice and theory of husbandry to young men of the Province engaged in Agricultural or "Horticultural pursuits, or intending to engage in such ; and second, to conduct experiments "tending to the solution of questions of material interest to the Agriculturists of the Province, "and publish the results from time to time."

"That the Farm should be separated into five distinct departments, namely :

"1. Field Department.
"2. Horticultural Department.
"3. Live Stock Department.
"4. Poultry, Bird and Bee Department.
"5. Mechanical Department.

"All permanent improvements on the Farm should be carried out on a gradually "developed system, and in such a manner as to exhibit and test the comparative values of the "most approved method of executing the several works ; and to test the cost, convenience "and durability of the several appliances from time to time recommended for adoption on "the farms of the Province."

In order to carry out the suggestion of the Provincial Farm Commission, the Government made such improvements on the residence found on the place as would best utilize it for present purposes. Accommodation was provided for about twenty-five pupils, a Principal and Rector were appointed, and a Foreman for each of the following four departments engaged, viz. :

1. Farm Department.
2. Live Stock Department.
3. Horticultural Department.
4. Mechanical Department.

The Institution was opened in May, 1874. Since that time many improvements have been made on the Farm, and the facilities at hand for the purposes of education greatly increased. The nucleus of a breeding stock, consisting of six different breeds of cattle, five of sheep, three of pigs, and eight of poultry, has been secured, and the latest and most improved implements bought.

A mansard story, giving accommodation for eighteen additional students, has been placed on the main building; and a three-story structure, with Veterinary and other class rooms, to be used entirely for school purposes, has been put up. An addition is in course of erection, which will, when completed, as is hoped this fall, increase the accommodation to about a hundred.

The experience gained during the last two years has enabled the following course of study, rules and regulations, to be drawn up. These are published in order that the people, and especially the farmers of the Province, may see at a glance the terms of admission to, the subjects taught in, and the benefits to be conferred on its pupils by "The Ontario School of Agriculture and Experimental Farm."

I.—TERMS OF ADMISSION.

Before admission to the School as a pupil, each candidate, being at the full age of fifteen years, will produce the following certificates:—

1. As to moral conduct.
2. As to physical health and strength.
3. As to the assent of his parents or guardian for admission.
4. As to his intention to follow agriculture or horticulture as an occupation.

The standard of education necessary for admission as a pupil, will be as follows: about equal, as will be seen, to the fifth class of a good Public School:

1. Reading, writing, spelling.
2. English grammar—analysis and parsing of simple sentences.
3. Arithmetic—to Proportion.
4. Outlines of General Geography, and Geography of Canada.

Those who can produce certificates of entrance into any High School, those who hold Teachers' Certificates, or are graduates or under-graduates of any University in Her Majesty's Dominions, are considered to possess the literary qualification requisite for admission.

Those who, by residing in parts of the country not furnished with good schools, or through other unfavourable circumstances, cannot pass the entrance examinations, but who nevertheless are fairly skilled in farm operations, will be allowed to enter the preparatory year, which year will be by them largely spent in the school. Those who know nothing of farm operations will be likewise allowed to enter the preparatory year, which in their case, will be mainly spent on the farm.

Farmers' sons or others following the occupation of farming, will be allowed to attend classes during the Winter Session, which shall count as a year under conditions hereinafter specified.

II.—COURSE OF STUDY.

The instruction given at this Institution is divided into two parts:

1. Course of Study.
2. Course of Apprenticeship.

The former has reference to the theoretical, and the latter to the practical instruction. The regular course of study for matriculated students is one of two years. There is a special course for those attending during the Winter Session, whereby no apprenticeship being undertaken at that time, additional studies are possible, and the whole field covered in two Winter Sessions—called two years.

The course of study is as follows:

First Year.

Subjects:

Practical Agriculture.	Chemistry.
Veterinary Anatomy.	Botany.
Veterinary Materia Medica.	Zoology.
Physical Geography.	Geology.
English.	Mathematics.

SECOND YEAR.

Subjects:

Agriculture.	Agricultural Chemistry.
Veterinary Pathology.	Economic Botany.
Veterinary Surgery and Practice.	Entomology.
Book-keeping.	Meteorology.
Levelling and Surveying.	English Literature.

PREPARATORY YEAR

For those with poor education, but with skill in farm operations.

Subjects:

Arithmetic.	History.
Grammar.	Reading and Spelling.
Geography.	Writing and Correspondence.

PREPARATORY YEAR

For those with fair education, but with no knowledge of farm operations.

Subjects:

English.	Mathematics.
Farm Apprenticeship.	School Instructions on Farm operations.
Garden Apprenticeship.	

III.—DEPARTMENTS OF INSTRUCTION.

I.—AGRICULTURE.

INTRODUCTION.—*History of Agriculture.*—Ancient, mediæval, modern; *Literature*—standard works—reports of Societies—periodicals; *Varieties of farming*—dairy—stock—ordinary mixed husbandry.

SOILS.—Origin, distribution, physical properties and classification of soils; *Reclamation of lands*—forest clearing—stumping, stoning, fallowing, &c.

PREPARATION OF THE LAND FOR CROPS.—Ordinary operations of tillage—ploughing, harrowing, cultivating, rolling—subsoiling, levelling—general cultivation most appropriate for the various kinds of soils.

SUCCESSION OF CROPS.—Importance and necessity of rotation—principles thereof—rotations suitable for various soils; crops—root, forage, cereal—treated with reference thereto.

CULTIVATION OF CROPS.—The various crops; *Cereals*—wheat, oats, barley, &c; *Leguminous*—peas, beans, &c.; *Roots*—turnip, carrot, potatoe, &c.; *Forage or Herbage*—tare, lucerne, clovers, grasses, flax, hemp—cultivation most appropriate for each; *Seeds*—purchasing—testing—preparing—changing; *Sowing*—kind and quantity of seed—method of sowing; *After cultivation—harvesting—consumption*, or preparing for market—cost of production—laying land down to grass—management of grass and pasture land.

IMPROVEMENT OF SOILS AND LANDS.—Improvement by thorough ordinary cultivation—subsoiling; *Draining*—its value—principles—various methods of draining—formation—levelling for—materials used in formation—cost and remuneration; *Manuring*—farm-yard manuring; Application, uses and properties of *artificial manures*—lime, plaster, salt, bones, superphosphate, nitrate of soda, &c., &c.

Breeding, Rearing and Feeding of Animals.—Horses suited for agricultural purposes—various breeds—breeding—feeding, and general management; *Cattle*—characteristics of the various breeds—Shorthorns, Herefords, Devons, Ayrshires, &c.—methods of breeding—cross-breeding—in and in breeding—pedigree system—rearing young stock—the fattening process—relation of food to increase—dairy management, butter and cheese management—the factory system—realization; *Sheep*—characteristics of various breeds—long wools—medium wools—short wools—breeding and management of ewe flock—winter and spring feeding—rearing of lambs—relation of food to increase; wool—texture—quantity and quality—dipping and salving—quantity maintained per acre; *Swine*—characteristics of the various breeds—breeding and management of sows—stores—fattening—relation of food to increase—bacon curing; *Poultry*—characteristics of the various breeds—general management.

Implements of the Farm.—Mechanical principles entering into their construction; ploughs—harrows—cultivators—other tillage implements—sowing machines—grass seed and manure distributors; mowing and reaping machines; hay making and harvesting machines—threshing and dressing machines; barn implements; waggons—sleighs—carts; straw cutters—turnip cutters and pulpers; implements used in stock feeding—common—steaming; implements of less general use.

General Economy of the Farm.—Laying out a farm—formation and management of roads and lanes; *Fences*—varieties—position—mode of construction—materials—movable fences—hurdles; *Hedges*—varieties—methods of planting—after cultivation; *Buildings*—dwellings, out-buildings, stables, barns, sheds—principles of construction—plans and specifications.

General Business of the Farm.—Capital necessary—values and prices of land, stock, implements and improvements—value of all kinds of labour—making of inventories—keeping of stock and produce registers; *Markets*—economical laws regulating them—customs affecting them—modes of buying and selling—common laws relating to agriculture—relation of agriculture to the other industries.

Arboriculture.—Application to the American continent—different kinds of trees—occurrence, habits, uses, values—value of timber as a crop—raising of trees from the seed bed—what parts of the country should be planted—planting operations—transplanting large trees—enclosing and draining planted ground—management of trees with a view to shelter and economy.

Miscellaneous Subjects.

II.—Science.

I.—Chemistry:

Chemical Physics.—Force and matter—correlation of force—properties of matter—gravity, cohesion, heat—light—magnetism—electricity; forms of matter—liquids—solids—gases.

Inorganic Chemistry.—Scope of chemistry—atomic theory—chemical affinity—the *non-metallic* elements—oxygen—hydrogen—water, its nature—occurrence—functions—states, and decomposition—nitrogen—the atmosphere—ammonia—its sources and important uses—oxides of nitrogen—nitric acid and its importance to plants—sulphur and its compounds—sulphuric acid, its manufacture and uses—phosphorus—the agricultural importance of phosphoric acid—carbon—silicon—flint—sand—silicates—chlorine—bromine—iodine, &c.; *The metals*—the alkalies—sodium—potassium—soda—salt; calcium—lime—plaster; lead and its compounds; iron—its ores and manufactures; arsenic—its compounds and detection—gold, silver, platinum, tin, &c., &c.—occurrence and uses—alloys.

Organic Chemistry.—Scope of the division of the science—organic compounds derived directly or indirectly from plants and animals—artificial formation of organic compounds—classification of organic bodies and their complexity—determination of the empirical and rational formulæ of organic bodies; *Wood spirit* and its derivatives—methyl compounds—chloroform—acetic acid and its compounds—alcohol and

the process of fermentation—constitution of oils and fats—manufacture of soap and candles ; *Starch and sugar*, and the other amyloids and glucoids—manufacture of sugar—tartaric, lactic, citric and mallic acids. The flesh-formers or albuminoids and their congeners ; *Essential oils and resins*—varnishes—petroleum ; *Vegetable Alkaloids*—quinine—strychynia ; aniline dyes ; urea and uric acid ; *Animal Chemistry. Vegetable Chemistry.*

Agricultural Chemistry.—History of the connection between agriculture and chemistry—the food of plants—the origin and nature of soils—analysis of soils—relation of different plants to the soil—composition of different crops—chemical changes during the growth of different plants—rotation of crops—manures, special and general—the composition of farm-yard manure—nature and analysis of guanos and superphosphates—other manures—feeding of animals—foods—ingredients of foods—relation of increase to composition of food—economy of food.

Practical Chemistry.—Chemical manipulation—the practical testing of water, soils, foods, superphosphates, and other manures, and the preparation of the common gases, and the common acids.

Analytical Chemistry.—Qualitative and quantitative analysis, especially the analysis of soils, manures and farm produce.

(a.) *Throughout all the courses, both of laboratory and experimental lectures, a constant endeavour is made to illustrate the principles of the pure science of Chemistry, on which the whole teaching is based by agricultural examples.*

II.—Natural History and Entomology :

Botany.—*Structural and physiological*—internal structure of plants—cells and vessels—construction and development of the external parts of plants—root—stem—leaf—flower—seed—fruit—Physiology of cells and vessels—chlorophyll, starch, gum, sugar, crystals, &c.—movement of fluids and gases—nutrition and respiration—reproduction—methods of fertilization—hybridization—varieties—propagation—budding—division ; diseases of plants—smut—rust—mildew, &c.

Systematic and Economic Botany.—Special morphology and general classification of plants, flowerless plants—mosses—ferns—fungi, &c. ; flowering plants—characters of larger divisions. The orders containing important agricultural and economic plants—the cereals—grasses—roots with geographical distribution—agricultural seeds and fruits.

Zoology.—Nature of life—vital force—differences between animals and plants—differences between different animals—morphology and physiology—definition of species—origin of species—classification—characters of the general classes and orders of the *Invertebrates*, with examples. Special study of *Infusoria*, *Scolecida*, *Annelida*, and *Insecta*. General characters of the *Vertebrates*—the various orders, with morphological and physiological distinctions of each, illustrated by common examples. Special study of the families of the *Aves*, containing the insectivorous birds, and the families of the *Mammalia*, containing all the various farm animals. Comparative anatomy and physiology of farm animals.

Entomology.—Structure and physiology of insects—metamorphoses of insects—senses of insects—insects injurious to vegetation—to growing plants—to fruits—the apple, plum, pear, peach, small fruits, &c.

III.—Geology, Physical Geography and Meteorology :

Geology.—Geological epochs—classification of rocks—structures—stratification—cleavage—foliation, dip, fault—denudation ; elevation and depression of land ; degradation of rocks by aqueous and atmospheric agencies—formation of soils—Canadian geology.

Physical Geography and Meteorology.—Connection between physical geography and geology—distribution of land and water—superficial configuration of On-

tario—theory of wells and springs. *History and scope of meteorology*—weight of atmosphere—how ascertained—*barometer*—various kinds—manipulation ; *Temperature*—how observed and calculated—*thermometer*—varieties, Fahrenheit, centigrade, &c. use of each—manipulation ; solar and terrestrial radiation—moisture of the atmosphere ; mists—fogs—clouds ; rain—snow—hail ; winds and storms ; miscellaneous—causes affecting the climate—influence of climate on vegetation.

III.—English and Mathematics.

English.—*Review of past school work*—study of the etymological, syntactical, and rhetorical forms of the English language—history of its formation—elements entering into it—its connection with other languages. Analytical study of one of Shakespeare's plays, and of extracts from some of the other English classics each year—*English composition*—the sentence—the paragraph—rhetorical figures—their use and abuse—species of composition—qualities of style—varieties of style. Essay writing—familiar and business correspondence. *Political Economy*—wealth—labour—capital. Production—distribution—exchange—government—and the position that agriculture holds in each ; relation of agriculture to all the other industries of a nation.

Mathematics.—*Arithmetic.—Review of past work in arithmetic, with special view to farm accounts*—tables of weights and measures—proportion—interest—discount—partnership—square and cube roots—*Mental Arithmetic, Mensuration*—the mensuration of every kind of surface, including the quantity of land cultivated by various machines—the surface occupied by different crops—the measurement of solids, including the contents of tanks, ditches, wells, manure heaps—walls—the materials for roads—timber, &c. *Surveying* in its commoner branches—fields surveyed with the chain and cross-staff—heights and distances found by the use of the theodolite—levelling practised. *Mechanics*—methods for calculating the weights of different materials—the units of work performed by various agents in the execution of particular works—the strength of materials—the mechanical powers—friction—the steam engine, &c. Those parts of dynamics which have reference to agricultural machinery, such as centrifugal force—accumulated work.

IV.—Veterinary Science.

Anatomy and Physiology of the Domestic Animals.—Horse—ox—sheep—pig—Osseous system—muscular system—syndesmology—planitar system—ondontology—digestive system—circulatory system—respiratory system—urinary system—nervous system—sensitive system—generative system—tegumental system.

Veterinary Pathology.—Osseous system—giving the nature, causes, symptoms and treatment of the various diseases of bone as splint—ringbone, &c.

Muscular system—nature—causes—symptoms—and treatment of flesh wounds, &c.

Syndesmology—nature—causes—symptoms—and treatment of bog spavin—curb, and other diseases of joints.

Planitar system—nature—causes—symptoms—and treatment of corns—sand crack and other diseases of the foot.

Odontology describing the disease of the teeth ; also the mode of determining the age of the animals of the same.

Digestive system—nature—causes—symptoms and treatment of spasmodic and flatulent colic—inflammation of the bowels—acute indigestion—tympanitis in cattle—impaction of the rumen, and many other common diseases.

Circulatory system—describing the diseases of the heart and blood vessels.

Respiratory system—nature—causes—symptoms and treatment of catarrh—nasal gleet—roaring—bronchitis—pleurisy—inflammation of the lungs, &c.

Urinal system—nature—causes—symptoms—and treatment of inflammation of kidneys, &c.

Nervous system—nature—causes—symptoms—and treatment of lock-jaw, string-halt, &c.

Sensitive system—nature—causes—symptoms—and treatment of the diseases of the eye and ear.

Generative system—nature—causes—symptoms—and treatment of abortion—parturi—tion milk fever, &c.

Tegumental system—nature—causes—symptoms—and treatment of scratches—sallenders—mallenders—parisites—and other diseases of the skin.

Materia Medica.—Giving the preparation, actions, uses, doses, of over one hundred of the principal medicines used in veterinary practice.

General Subjects.—The external form of the horse—thorough-breds—half-bred hunters—harness animals—draught animals. The external forms of stock—breeding—selection of animals—crosses—transmission of hereditary diseases; spavin—splints, side bones—ring bones—grease—blindness—roaring, &c., and their remedies—sterility—abortion—general managements to produce successful gestation—parturition—natural and præternatural presentations—their treatment. The management of young stock—weaning—feeding—methods of preventing blood diseases. The feeding of animals ventilation—water—stabling. The influence of climate upon animals.

A.—Demonstration of Anatomy in the Dissecting Room.

A.—Horticulture.

Occasional lectures are all that as yet are given on this important subject.

IV.—COURSE OF APPRENTICESHIP.

The pupils will be daily distributed to each of the following departments:—

1. The Live Stock Department.
2. The Field Department.
3. The Horticultural Department.
4. The Mechanical Department.

They will be taught the manner of performing the various operations in each department by the Instructor or his Assistants in that department; and being distributed alternately to each, it is expected that at the end of two years a thorough apprenticeship will have been served

The instruction received in the class-room will, as far as possible, be illustrated and exemplified in the fields, yard and shops. The following may be taken as a few of the operations, in the performance of which apprenticeship will be served:—

Field Department.—Cleaning, harnessing and management of horses, ploughing—harrowing—cultivating—drilling—subsoiling—sowing broadcast by drill—planting—hoeing and grubbing—haying by scythe and mower—harvesting by cradle and reaper stoning—threshing—winnowing—marketing—draining—levelling—land measuring—stumping—logging—chopping, &c., &c.

Live Stock Department.—Cutting—pulping—steaming—mixing—feeding—cleaning—and general management of *cattle*. Feeding—lambing—shearing—castration—dipping—salving—hurdling—and general management of *sheep*. Feeding and general management of other stock and poultry.

Horticultural Department.—Digging—ploughing—raking—seeding—planting—hoeing—mowing—harvesting—storing—and general management of vegetables, flowers, and lawn. Pruning—grafting—budding—mulching—cleaning—harvesting and storing—and general management of an orchard. General management of propagating houses, green houses, vinery, nursery, hedges, walks and roads, &c., &c.

MECHANICAL DEPARTMENT.—Planing—sawing—nailing—grooving—matching—morticing—framing and general use of commoner mechanical tools. Fencing—hurdle-making—gate making—and management of general farm improvements. Repairs of all farm buildings, implements, machines, &c., &c.

V. SESSIONS AND EXAMINATIONS.

For those taking the regular course there will be two Sessions in each year, a winter and a summer one, The former will commence on or about the first of October, the latter about the middle of April.

There will be a vacation at the end of each Session.

Examinations, which every student is required to pass, will be held at the close of the Session—in each inside Department, on the subject of Lectures in that Department for that Session; and in each outside Department, on the work of that Department for the Session.

For those taking the special course there will be but one Session—the Winter Session—extending from the first of October to the end of March. To those who pass the requisite examinations, not only on the regular studies, but on the special ones likewise, this Session shall count as a year, and shall be so designated.

VI. DIPLOMAS AND DEGREES.

A diploma will be given to each student who completes his course of study, and passes satisfactorily all examinations, both on the subjects contained in the curriculum, and on the operations in the course of apprenticeship. Arrangements are being made, whereby diplomas or degrees so gained, will be issued by the University of Toronto.

VII. RESIDENCE; LABOR; FEES; REMUNERATION.

It is desirable that all students taking the regular course should reside in the building. As the town, however, is distant but a mile and a half, they may board in the town, and attend the Lectures, or go through the usual routine.

The number of hours of labor for regular students will vary with the seasons, but the arrangements will be such that an annual daily average of not more than five hours will be obtained and enforced, in the case of all matriculated students.

Tuition will be free.

Board and washing will be charged at cost.

For skilled work faithfully and zealously performed, payment at the rate of ten cents an hour will be made—for all other in proportion.

By this arrangement the cost of education will be reduced to a minimum. To a farmer's son, able and willing, with moderate experience in farm work, the cost should be little or nothing, and in no case should it be more than fifty dollars per annum.

Farmers' sons intending to be farmers, or others engaged in that occupation, who take the special course, will attend during the Winter Session only, and will reside either in the building or in the town, as circumstances may permit. For such students tuition will be free. Board and washing will be charged at cost rates. No opportunity of defraying the expenses can be promised to those taking the special course, but if work should require to be done, the same rates will be observed as have been previously mentioned.

VIII.—A.—GENERAL RULES.

I.—STUDENTS ARE REQUIRED—

1. To render cheerful and willing obedience to orders.
2. To conduct themselves in a gentlemanly and orderly manner at all times.
3. To avoid all noisy or boisterous conduct in or about the building.
4. To observe neatness of dress at prayers, meals, and lectures, and tidiness in their rooms.

II.—THE FOLLOWING PRACTICES ARE ABSOLUTELY FORBIDDEN :—

1. Profane swearing, improper language, and gambling.
2. Use of intoxicating liquors. cards, or fire-arms.
3. Use of tobacco while on detail, in or about the building, or in any place except in the smoking room.
4. Entering the domestic apartments without permission.
5. Absence without leave.

B.—GENERAL REGULATIONS.

1. The students who reside in the building will be under the charge of the President.
2. Each student, upon entrance, shall sign a declaration that he will conform to the rules and regulations of students.
3. A register shall be kept of the attendance of students at prayers, work and lectures.
4. All students shall attend morning and evening prayers, unless exempted from doing so, in consequence of the objection of their parents or guardians.
5. They shall regularly attend their respective places of worship on Sabbath forenoon.
6. No student shall be absent from the Institution after the time of evening prayers, except by permission of the President.
7. Students will be furnished with everything in the shape of furniture, bedding, towels, &c., that may be requisite, but each will be accountable for every such article placed at his disposal.
8. A deposit of five dollars will be required on entrance, to meet everything in the way of breakage.
9. Every student damaging or breaking anything is required to report the same, that the value of the repairs may be charged to his account.
10. The morning bell shall be rung at 5.30 a.m.; bell for morning prayers, at 6 a.m.; breakfast, at 6.30 a.m.; farm bell, at 7 a.m.; school bell, at 9 a.m.; farm bell, at 12 noon; dinner, at 12.30 p.m.; farm and school bells, at 1.30 p.m.; farm and school bells, at 4.30 p.m., tea, at 5 p.m.; school bell, at 7.30 p.m.; bell for evening prayers, at 9 p.m.; lights out and doors closed at 9.30 p.m.
11. The President is authorised to impose fines and other penalties, for the infraction of rules and regulations.
12. No student whose moral conduct, industrial or intellectual progress, is unsatisfactory to the staff, will be allowed to remain at the Institution.

IX.—GENERAL REMARKS.

A few general remarks on the appliances and advantages possessed by this Institution for training young men for agricultural pursuits, may, in conclusion, be given.

CLASSES OF STUDENTS.

There are in our Province, as a general rule, at least three classes of young men whom

an Institution of this kind can benefit. The first class are those who, from our cities and towns, or from other countries, with or without a small capital at their command, desire to obtain the necessary apprenticeship The second class is farmers' sons, or the sons of those closely connected with that occupation, who wish to complete their education before commencing their life-work. Both of these are provided for in our regular course. And lastly, there are farmers' sons or others engaged in farming who cannot possibly remain during the summer months, but desire to obtain an agricultural education. These are provided for in the special course. By taking that course they can overtake the studies of the Institution, and be back on their own farms to commence their spring work, returning again in the fall.

TEACHING APPLIANCES ON THE FARM.

The farm itself is being gradually laid out, cleaned and drained, and the students assist in those operations. The best and most approved of the various farm implements and machinery are used. The possession of six breeds of cattle, five of sheep, three of swine, and ten of poultry, is in itself an important advantage for the purpose of instruction. Besides this, there are in the immediate neighbourhood over a score of different herds, and they are regularly visited. In the adjacent town, monthly fairs, fat cattle shows, and a central exhibition are held. All of these are visited by the students, who regularly report. It is expected that this summer a cheese factory and a dairy, on a small but complete scale, will be furnished. These appliances speak for themselves.

EXPERIMENTS.

A portion of the farm has been laid out in experimental fields and plots, and regular systematic experiments, with varieties of grasses, cereals and roots, with different manures and different modes of cultivation, are being carried on. In these the second year students, as far as practicable, are engaged. Besides these field experiments, others in the feeding of live stock, to test the various kind and preparation of food, are, during the winter season, engaged in. The value of such experiments to the agricultural interest in the Province need not be pointed out. The discovery of one or two thoroughly successful varieties of wheat, oats and peas, would not only cover all expenses, but pay for the place itself in a couple of years by their value to the country. Without, mentioning this, however, it will be seen that the second years' students are trained in the modes of carrying out experiments.

TEACHING APPLIANCES IN THE SCHOOL.

These are constantly being added to, although in the meantime they are not so numerous as might be desired. Especially is the want felt in the Department of the Professor of Chemistry, for as yet there is but a small working laboratory in connection with the Institution. Appliances are usually in a school the growth of years, and with four teachers—masters of their subjects—the College may be said to be fairly equipped.

VETERINARY DEPARTMENT.

This most important department has been fairly started. A class-room and a dissecting room have been built, and are in operation, and it is expected that during the present year an infirmary will be fitted up. Arrangements are being made whereby the course at this Institution will be accepted as equivalent to a year's attendance at the Ontario Veterinary College.

LIBRARY, MUSEUM, AND READING ROOM.

The library is well selected, and, though small, is being constantly augmented. A museum is being established. Already it contains some fifteen hundred samples of grains, grasses, woods, wools, flax and hemp, together with between three and four hundred specimens of insects injurious to vegetation. And it is continually increasing. The reading-room is furnished with daily and weekly newspapers, with some half-dozen general, and the leading agricultural periodicals, of Canada, the United States and Great Britain. A few additions are likewise made by the Literary Society.

ADVANTAGES OF THE COURSE.

Besides becoming fairly skilled in the various operations of a farm, the student takes part in the cultivation of a garden, and learns all garden operations. He acquires likewise skill and knowledge in the use of tools, so that he is not only able afterwards to make his own repairs, but knows well when any such work is properly done. He sees for himself the thorough working of a farm, the effects of various rotations and different modes of cultivation, and becomes acquainted on the experimental ground, and in the class-room, with many varieties of grasses, grains, roots and manures. The different breeds of cattle, sheep, swine, and poultry, of common use in Canada, become familiar to him from daily contact with them; and the excellencies and defects of each he learns by lectures in the class-room, and reference in the yards. He is taught the method of keeping live stock registers, accounts of field cropping, and regular farm accounts. By personal observation he learns the routine of auction sales of farm stock and produce, of ordinary fairs and stock markets, and of the common grain market. He becomes acquainted with the prices of stock, implements, produce, building and improvements, and is prepared to perform the *business* of a farm. He obtains in the Veterinary Department a knowledge of the structure and functions of farm animals, and the most approved methods of preventing and treating the ordinary diseases to which such animals are liable. And the study of the relations of the plant, the soil, and the animal to each other, and to his profession under the names of Botany, Chemistry, &c., not only opens out to him the reasons for the rules of the best farm practice, and enables him afterwards to discover other such rules, but it likewise forms in him intellectual habits of reasoning correctly, systematically and thoroughly, which cannot fail in after life to make him as well a better citizen as a better farmer. And lastly, by this, as well as by the teaching in the class-room, by reading the standard works in the library, and the news papers and periodicals in the reading-room, by contact with his fellow students, and by discussions carried on with them in their Literary Society his mind will be sharpened, strengthened and widened, his power of thinking, and ability to express his thoughts greatly increased; and, learning the true relation of his business to all the other industries of the country, he will be enabled in after life to take that influential position which the importance this occupation imperatively demands. If the student be careless, thoughtless, or lazy, few of those advantages will be reaped; but if he be attentive, energetic and diligent, the majority of them will undoubtedly be appropriated.

APPENDIX C.

EXAMINATION PAPERS.

EASTER, 1877.

Scholastic Year, 1876-77.

AGRICULTURE.

Examiner: WILLIAM BROWN, ESQ.

1. Give the rotation of cropping adopted on this farm, and name, on the accompanying plan, the crops of each field for 1876 and 1877.

2. What should be aimed at in the construction of all implements and machinery—classifying those used in agriculture, in the order of their requirements, beginning with spring work?

3. Give the points of a good Ayrshire cow.

5. Detail the judging of wool, and say where you find the different qualities of it on a sheep.

6. Classify wheat, oats, barley and rye, and give the particulars to be attended to in their selection for seed.

7. Give such a description of our five pure breeds of cattle that any person could easily select by it.

8. Name respectively the long and short wooled sheep of this farm, distinguish the individuals of each, so that they could be easily recognised.

9. What are the requisites of a good building af any kind ?

10. What is dairy management in its widest sense ?

SECOND YEAR.

AGRICULTURE.

Examiner : William Brown, Esq.

1. On the accompanying plan of this farm name the crops of 1876, and give a short statement of the management of each field.

2. Describe the general management of ewes at lambing time.

3. In feeding animals, what conditions should guide us, and what kinds of food are best to make fat, bone and blood respectively ?

4. Judge and report, according to our standard, on the points of *Cambridge* 10*th*.

LAND MEASURING AND LEVELLING.

1. Calculate the area of our pleasure grounds according to E on the plan, using a scale of 1-16th of an inch to a chain.

2. On a straight line across the centre of fields 1 to 5 inclusive, the following is a running level .—

Back Sight.	Fore Sight.
Road Fence—3.5	7.2—Centre of field 1
2 1	4.1—Fence between 1 and 2
8.3	1.2—Centre of 2
2.0	7.0—Between 2 and 3
4.4	5.6—Centre of 3
4.2	4.2—Between 3 and 4
1.3	6.3—Centre of 4
4.5	5.0—Between 4 and 5
14.0	0.1—Centre of 5
10.4	14.0—Road Fence.

Complete the field book, and make section on a scale of $\frac{1}{4}$ of an inch to each 100 feet horizontal, and each foot vertical—the fields being equi-sized and each ten chains broad.

FIRST YEAR.

SHORTHORN HISTORY.

Examiner : W. Johnston, B.A.

1. Distinguish the Shorthorns from the Herefords, the Devons, and the Ayrshires respectively.

2. "Improved Shorthorns."

(*a*) Explain fully the meaning of the term.

(*b*) Sketch the early history of the improvements.

(*c*) Describe the points in which they were principally needed and made.

3. "Charles Collings, Thomas Bates, Thomas Booth, Richard Booth."
(*a*) Sketch briefly the breeding career of each.
(*b*) Name their herds and the most famous bulls used in each.
4. (*a*) How did the Shorthorns become so quickly known and generally preferred?
(*b*) Show the immediate results by quotations from the Collings' sales.
5. (*a*) Name the most important breeders cotemporary with the Collings.
(*b*) Name as many as you can of the famous breeders of to-day in Britain and the United States.
6. Give a concise sketch of Shorthorn importations into Canada, and a list of our most famous herds.
7. "English, American, and Canadian Herd Books."
(*a*) Sketch the history of the establishment of the first.
(*b*) Name the compilers of each.
(*c*) State any difference in admission.
(*d*) How are the numbers recorded in each?
8. Give points of a Shorthorn as regards—

(*a*) Muzzle.	(*e*) Spine.
(*b*) Head.	(*f*) Rumps.
(*c*) Crops.	(*g*) Tail.
(*d*) Fore Ribs.	(*h*) Touch.

9. Write brief notes on "the Kyloe controversy," "in and in breeding," "prepotency," "family blood," "pure *vs.* perfect Shorthorn," "prices *vs.* value of Shorthorns."

SECOND YEAR.

AGRICULTURAL AND ORGANIC CHEMISTRY.

Examiner: PETER H. BRYCE, B.A.

1. (*a*) State any peculiarity of C which explains the assertion "Organic Chemistry" is the Chemistry of the C compounds.
(*b*) State the chief peculiarities of the Organic Compounds.
2. (*a*) Give the preparation and formula of Ethyl Alcohol.
(*b*) State the amounts per cent. of Alcohol in "Proof Spirit of the Excise.
3. (*a*) Describe preparation and give formula of Acetic Acid (vinegar).
(*b*) Show from what you know of the composition of woody tissue that vinegar may be prepared by distillation of wood.
4. (*a*) Describe, with formulas showing the reactions, the preparation of Soaps
(*b*) State the difference in composition of hard and soft soap, and the modification forming Castile and Glycerine Soaps.
5. (*a*) Describe the preparation of Cane Sugar.
(*b*) Show by formulas the intimate relations of *Cane Sugar*, *Grape Sugar* and *Starch*, and the elements of their formation in plants.
6. (*a*) State the chief organic constituents of wheat.
(*b*) On what do its superior nourishing qualities, over so called "Starchy" food, depend; and give the reason why "brown flour" is more nourishing than "white"?
7. (*a*) State the causes and form of decay.
(*b*) State the action and name of some "preventives."
8. (*a*) Give the sources, preparation and formula of Urea.
(*b*) State from your knowledge of its constituents, what important part it plays in vegetable growth.
9. (*a*) State the principal sources of Carbonic Acid ($C.O._2$) (1) in the air, (2) in the soil.
(*b*) Describe Boussingault's experiments from which he concluded that plants derived $\frac{2}{3}$ of their C. O. from the air.
(*c*) State any circumstances modifying the accuracy of his conclusions.

10. State the sources of Nitrogen (N) in plants, and its importance to vegetable growth.
11. (*a*) Write a paper on the formation of the soils of Ontario.
(*b*) State in what respects virgin soils are superior to long cultivated soils.
12. From your knowledge of the constituents of plants establish an argument—(1), for "rotation of crops.
(2) The use of artificial manures.
13. (*a*) On what soils would Chil Saltpetre ($Na\ C.\ O._3$) act most favourably?
(*b*) Give reasons.
14. (*a*) State the beneficial effects derived from action of gypsum on soils.
(*b*) State also the beneficial effects derived from superphosphates.
15. State the various means under the subjects—
1st. Preservation
2nd. Reconstruction } of Fertility in Soils.
3rd. Development

FIRST YEAR.

CHEMISTRY.

Examiner: Peter H. Bryce, B.A.

1. (*a*) State the elements which occur in nature as gases.
(*b*) Describe the occurrence, preparation and properties of Oxygen (O).
(*c*) Write formulas for its compounds with (H) and (N).
2 Describe the occurrence, preparation and properties of Nitric Acid ($H\ NO_3$), and Amonia ($N\ H_3$).
3. (*a*) Describe the preparation and uses of Bone Charcoal.
(*b*) Describe the occurrence, preparation and properties of $C\ O_2$.
4. (*a*) Describe the modes in which Sulphur occurs in nature.
(*b*) How is $H_2\ S\ O_4$ prepared?
5. (*a*) Name the Haloid elements, and give, with formulas, a compound of each.
(*b*) Describe the preparation and properties of H and H F.
6. (*a*) How does Phosphorus occur in nature?
(*b*) Describe the preparation of Baracic Acid, and give the composition of Borax.
7. (*a*) What are the distinguishing properties of the metals?
(*b*) Classify them.
8. (*a*) Describe the preparation, and give uses of Nitre ($K\ N\ O_3$).
(*b*) Describe the preparation of gunpowder.
9. (*a*) How does Ca. occur in nature?
(*b*) Give formula, mode of occurrence and properties of Gypsum.
10. (*a*) Describe the preparation and uses of zinc.
(*b*) Give the composition and mode of occurrence of Epsom Salts.
11. (*a*) Give an outline of the process by which Iron (Fe), is extracted from its ores.
(*b*) Distinguish by composition between "wrought iron," "cast iron" and "steel."
12. (*a*) Describe the extraction of silver from its ores.
(*b*) How many small amounts of silver be profitably extracted from lead?

SECOND YEAR.

ENTOMOLOGY.

Examiner: Peter H. Bryce, B.A.

1. The term "Insect" is derived from the body of the animal being constricted at certain "points." Name, and give the distinguishing characteristics of each part.

2 (*a*) Describe the "masticatory" mouth of an insect.
(*b*) Show wherein it differs from the "suctorial" mouth.
3. Describe the "respiratory" organs of an insect.
4. Show how the motion of an insect's wings affects respiration.
5. Give the distinguishing characters of the Coleoptera.
6 (*a*) Give the classes of the order Coleoptera.
(*b*) Explain the terms "Geodephaga," "Brachelytra," "Sternoxi." and "Malacodermata," with examples, showing the appropriateness of each term
7. Describe and classify the "Wood Tiger Beetle" ("*Cicindela Sylvatica.*")
8. Give the characteristics of the "Water Beetles" ("*Hydradephaga.*")
9. Give the distinguishing differences of the families "*Dytiscidæ*" and "*Gyrinidæ.*"
10. (*a*) Give the general characteristics of the "*Necropahaga.*"
(*b*) Describe and classify "*Necrophorus Marginatus.*"

FIRST YEAR.

ZOOLOGY.

Examiner: W. JOHNSTON, B.A.

1. In the field of Natural History point out clearly the domain of Zoology, distinguishing it on the one hand from that of Biology, and on the other from that of Botany.
2. "Morphological and Physiological types." Explain fully, and point out the six leading Morphological types in the Animal Kingdom, naming the divisions founded on them, and giving the distinctive points of each.
3. Illustrate the different modes of reproduction in the Animal Kingdom, giving the metamorphoses that in particular cases are undergone, taking as examples, amongst others, an amœba, a medusa, a tape-worm, an insect, and a frog.
4. Describe the locomotive organs of the first three divisions of the Invertebrates.
5. Describe briefly the structure of a sponge, a fluke, a crab, a spider, and an oyster, classifying each.
6. Give the anatomy and physiology of an insect, and name the orders of the *Insecta*, with examples of each order.
7. Mention the general characters of the *Vertebrata*, name the orders, and point out the modifications of the skeleton in fishes and in reptiles.
8. Describe the varieties of the integumentary covering found in the Vertebrates, and the structure of the organs used in respiration in fishes, birds, and mammals.
9. Name the orders of birds, distinguish between the orders, and give a few examples of each.
10. Name the orders of the *Mammalia* with examples, and distinguish between the *Ungulata* and the *Carnivora*, between the *Troglodytes* and *Man*.
11. Describe fully the digestive system of the Ruminants; name the families, giving examples and distinctive characters.
12. In comparing the anatomy of the horse, the cow, the sheep, the pig, and the dog, point out the differences in the skeleton and the digestive system. Classify each animal.
13. Write brief notes on "tests," "thread cells," "coral reefs," "lingual ribbon," "funnel," "swimming bladder," "marsupium," "whalebone," "horns vs. antlers," "facial angle," and on the expressions, "Life is a product of organization," "Species is but a development from pre-existent forms."

FIRST YEAR.

BOTANY.

Examiner: W. JOHNSTON, B.A.

1. Define the term Botany, and show the difference between Structural and Physiological Botany.

2. (*a*) Distinguish between cells and vessels.
(*b*) Enumerate the varieties of each.
(*c*) Give the composition of a cell.
3. Describe the structure, and give the parts of root, stem and leaf.
4. (*a*) Name the parts of a flower minutely.
(*b*) Describe the structure of the reproductive organs.
5. Give the parts of the seed, and name the simple fruits.
6. (*a*) Give the contents of cells and vessels.
(*b*) Describe the processes of nutrition, especially the circulation of the sap.
7. (*a*) Give the chemical changes that take place from flowering to seed ripening.
(*b*) Describe the process of fertilization.
8. (*a*) Give the method and *rationale* of *hybridization.*
(*b*) Show its importance to the gardener.
9. (*a*) Enumerate the causes of disease in plants.
(*b*) Give a list of the commoner diseases.
(*c*) Describe the processes of development and treatment of rust, smut and mildew.

SECOND YEAR.

METEOROLOGY.

Examiner : PETER H. BRYCE, B.A.

1. (*a*) State the principle on which the use of the barometer, as a weather indicator, depends.
(*b*) Describe Adie's barometer.
2 (*a*) Describe the requisites of a good thermometer.
(*b*) State the precautions necessary to insure the registration of the correct temperature.
3. (*a*) Explain the use of "maximum', and "minimum" thermometers.
(*b*) Describe any one of each kind.
4. (*a*) Explain the influence of forests on climate.
(*b*) Illustrate by reference to the climate of Ontario.
5. (*a*) "The specific heat of a substance is the number of units of heat required to raise the temperature of one pound through one degree." Show how this goes to explain the fact that the fruit trees on lands lying along our lake-shores are less injured by early frosts than those farther inland.
6. (*a*) Show in what way snow affects the temperature of the soil.
(*b*) Show how it affects the growth of winter wheat in Ontario.
7. "One of the most important consequences of evaporation is the loss of heat, which accompanies it."
Show the relation between this statement and the fact that drainage raises the temperature of the soil.
8. (*a*) Explain the action of the "dry and wet bulb thermometers as an Hygrometer."
(*b*) Explain what is meant by the Dewpoint, and show the value of its determination to the horticulturist.
9. (*a*) Describe fully the causes of the "Trade-winds."
(*b*) Show how they are modified during the summer on the Indian Ocean.
10. Explain fully the "laws which seem to govern storms."

SECOND YEAR.

ENGLISH AND BOOK-KEEPING.

Examiner : W. JOHNSTON, B.A.

1. Show by a table the relations of the English on the one hand to the German, and on the other to the Romance tongues.

2. By reference to the history of Britain, show at what periods the Latin and the Scandinavian elements entered into the composition of our language, and give examples of both elements.

3. (*a*) Describe the various divisions under which the English language is usually studied.
(*b*) Define, with examples, the rhetorical figures of *Antonomasia*, Metaphor, and Synecdoche.

4. (*a*) Give the various kinds of English composition.
(*b*) Define, with examples, *ode*, *epic*, *lyric*, *pastoral*, *tragedy*, *comedy*.

5. (*a*) Describe a few of the qualities of style.
(*b*) Enumerate the varieties of style.

"The raven himself is hoarse
That croaks the fatal entrance of Duncan
Under my battlements. Come, you spirits
That tend on mortal thoughts, unsex me here;
And fill me, from the crown to the toe, top full
Of direst cruelty! make thick my blood,
Stop up the access and passage to remorse;
That no compunctious visitings of nature
Shake my fell purpose, nor keep pace between
The effect and it! Come to my woman's breasts
And take my milk for gall, you murdering ministers.
Wherever in your sightless substances
You wait on nature's mischief! Come, thick night,
And pall thee in the dunnest smoke of hell,
That my keen knife see not the wound it makes,
Nor heaven peep through the blanket of the dark,
To cry "Hold, hold."

(*a*) Where the Norweyan banners flout the sky.
(*b*) Aroint thee, witch! the rump-fed ronyon cries.
(*c*) Weary se'ed nights, nine times nine.
(*d*) Till that Bellona's bridegroom, lapped in proof
Confront him with self-comparisons.
(*e*) Greater than both by the all hail hereafter,
(*f*) There is no coigne of vantage but this bird has made
His pendant bed and procreant cradle.

Shakespeare's Macbeth.

6. (*a*) Point out all the figures of *euphony*, *syntax*, or *rhetoric*, found in the extracts.
(*b*) Explain all allusions.

7. (*a*) Give derivation of and synonyms for the italicised words.
(*b*) Paraphrase the single extracts.

8. Distinguish between historic and poetic truth, and illustrate by the play of Macbeth, comparing the points of the real history and the dramatic one.

9. Compare the characters of Lady Macbeth and her husband, as drawn by Shakespeare in the play.

BOOK-KEEPING.

1. Put in their proper place, in your Farm Books, the following memoranda:—

April 22nd, 1866.—Two teams and two men working in Field No. 16. Sowed by hand on Field No. 12, 19 bushels 28 lbs. barley, worth 68½ cents per bushel. Drove into town towards evening. Bought from Jas. Smith, seedsman, on credit, 4 bushels 24 lbs. clover seed, at $8.25 per bushel, and 6 bushels 12 lbs. Timothy seed, at $3.80 per bushel. Settled in cash, my note for $240, at eight per cent., given in favour of William Jones, on January 7th, 1874. Cow Sally dropped a heifer calf this afternoon. I value it at $80. Four Cotswold lambs to-day, $45.

Oct. 4th, 1876.—All day threshing 386 bushels barley that came off Field No. 12. Besides threshers, were five hands from neighbours, self, my two men, and my three teams. Paid threshers $3.25 per hundred—cash. Sold to John Black this evening for cash, four berks at $12.25 each, and two lots N. E. corner of my farm, nearest the town—one 98×97 links, and the other 92×95·4 links, at $150 per acre.

FIRST YEAR.

ENGLISH AND BOOK-KEEPING.

Examiner: W. JOHNSTON, B.A.

1. Distinguish between the Ayran and Non Ayran groups of language, giving examples of each.

2. Show how the Celtic and Latin elements were introduced into the English language.

3. Distinguish between etymological, syntactical, historical and rhetorical analysis, and illustrate by the following extract :—

"I have ventured
"Like little wanton boys that swim on bladders
"This many summers on a sea of glory."

4. What is a figure? Define *Pleonasm*, *Simile*, *Metaphor*, *Personification*, *Metonymy*, and give examples.

"The *boast* of heraldy, the pomp of power"
"And *all that* beauty, all that *wealth* e'er gave"
"Await *alike* the inevitable hour"
"The paths of glory lead *but* to the grave."

(*a*) How bowed the *woods* beneath their *sturdy* stroke!
(*b*) Some heart once *pregnant* with *celestial* fire,
(*c*) Some *mute inglorious* Milton here may rest
Some Cromwell *guiltless* of his country's *blood*,
(*d*) *Forbade* to wade through slaughter to a throne
(*e*) To *quench* the blushes of *ingenuous* shame.
(*f*) And *melancholy* marked him for her own."

Gray's Elegy.

5. (*a*) Point out all figures of *euphony*, *syntax* or *rhetoric* in the preceding extracts.
(*b*) Paraphrase the expressions "boast of heraldy," "pomp of power," and extracts (*b*) (*d*) and (*e*).

6. (*a*) Explain all allusions in the single extracts.
(*b*) Give the derivation of the italicised words in the same.

7. Analyse the first extract, and parse the italicised words.

BOOK-KEEPING.

1. Put in their proper place, in your Farm Books, the following memoranda :—

APRIL 22ND, 1876.—Two teams and two men working in Field No. 16. Sowed by hand on Field No. 12, 19 bushels 28 lbs. barley, worth 68½ cents per bushel. Drove into town towards evening. Bought from Jas. Smith, seedsman, on credit, 4 bushels, 24 lbs. clover seed, at $8.25 per bushel, and 6 bushels 11 lbs. Timothy seed, at $3.80 per bushel. Settled in cash my note for $240 at eight per cent., given in favour of William Jones, on January 7th, 1874. Cow Sally dropped a heifer calf this afternoon. I value it at $80. Four Cotswold lambs to-day, $45.

OCT. 4TH. 1876.—All day threshing 386 bushels barley that came of Field No. 12. Besides threshers, were five hands from neighbours, self my two men, and my three teams. Paid threshers $3.25 per hundred—cash. Sold to John Black this evening for cash, four Berks at $12.25 each, and two lots on N. E. corner of my farm, nearest the town—one 98 × 97 links, and the other 92×95·4 links, at $150 per acre.

SECOND YEAR.

VETERINARY MATERIA MEDICA AND PATHOLOGY.

Examiner: E. A. A. GRANGE, V.S.

1. What is meant by an astringent?
2. Mention three medicines which act as astringents.
3. Describe the actions, uses, and doses of aloes.

4. What is the dose of Epsom Salts for the age as a purgative?
5. Describe the actions, uses, and doses of laudanum.
6. What is a deordorizer?
7. What is a disinfectant?
8. What is a rubefacient?
9. What is besicant?
10. What is a suppurant?
11. What is a stimulant?
12. Describe the actions, uses, and doses of extract of Belladonna.

CATTLE PATHOLOGY.

1. Describe the nature, causes, symptoms and treatment of Osteo Sarcoma.
2. Describe the nature, causes, symptoms and treatment of Impaction of the Rumen.
3. Describe the nature, causes, symptoms and treatment of white scour in calves.
4. Describe the nature, causes, symptoms and treatment of Tympanitis.
5. Describe the nature, causes, symptoms and treatment of choking.

FIRST AND SECOND YEARS.

VETERINARY ANATOMY.

Examiner: E. A. A. GRANGE, V.S.

1. Name the bones of the fore extremity of the horse.
2. Name the bones of the hind extremity of the ox.
3. Name the division of the spinal column.
4. Name the different parts into which the alimentary canal is divided.
5. What are the essential organs of digestion?
6. Name the dilations entering into the formation of the stomach of the ox.
7. Describe the scapula.
8. Describe the Femur.
9. Mention the organs of circulation.
10. Mention the organs of respiration.
11. Describe the stomach of the horse.
12. Describe the pulmonary circulation.
13. Mention the various structures forming the foot.
14. What parts is the hoof divided into?
15. Give an anatomical description of the heart and large blood vessels leading from, and entering into it.
16. What are divisions of the brain?
17. Name the coverings of the brain.
18. Give the name of, and mention the parts to which the cranial nerves are distributed.
19. What three classes are nerves divided into?
20. Name the three layers entering into the formation of the skin.

FIRST YEAR.

VETERINARY MATERIA MEDICA.

Examiner: E. A. A. GRANGE, V.S.

1. Mention the circumstances which modify the actions of medicine.
2. What is meant by an anti-spasmodic?
3. What is meant by a tonic?
4. What is meant by a refrigerant?
5. What is meant by a sedative?
6. What is meant by a narcotic?
7. What is meant by an antidote?

8. Describe the actions, uses and doses of acetic acid.
9. Describe the actions, uses and doses of alcohol.
10. Describe the actions, uses and doses of aconite.
11. Describe the actions, uses and doses of aloes.
12. Describe the actions, uses and doses of alum.
13. Describe the actions, uses and doses of carbonate of ammonia.
14. Describe the actions, uses and doses of belladonna.
15. Describe the actions, uses and doses of cantharides.
16. Describe the actions, uses and doses of carbolic acid.

APPENDIX (D).

ONTARIO AGRICULTURAL COLLEGE.

CLASS LISTS.

Sessional Examinations: Easter, 1877.

SECOND YEAR.

SUBJECTS.	CLASSES.		
	HONORS.		PASS.
	I.	II.	III.
Agriculture	1. Lindsay, A. J.	1. Sykes, W. J.	1. Shaw, G. H. 2. Whyte, A. *
Agricultural and Organic Chemistry	1. Lindsay.	1. Sykes.	1. Shaw. Whyte.
English and Mathematics		1. Lindsay.	1. Sykes. 2. Shaw. Whyte.
Entomology	1. Lindsay. 2. Sykes.	1. Shaw.	Whyte.
Meteorology	1. Sykes. 2. Lindsay.	1. Shaw.	1. Whyte.
Veterinary Pathology	1. Sykes. 2. Lindsay. 3. Shaw.		Whyte.

* Names unnumbered are those of Students who have failed to pass in the subject.
A. Whyte failed to pass in this division.

FIRST YEAR.

CLASSES.		AGRICULTURE.	SHORT HORN HISTORY.	CHEMISTRY.	ENGLISH AND BOOK-KEEPING.
HONOURS.	I.....	1 Carpenter, E. H. 2 Farlinger, W. K. 3 Naismith, D. M. 4 Fitton, H. W.	1 Ferguson 2 McKillop 3 Fitton 4 Carpenter 5 Farlinger	1 Fitton 2 Carpenter 3 Aird, Ferguson 5 Naismith 6 Crompton	1 Carpenter
	II.....	1 Buxton, E. W. 2 Meyers, R. D. 3 Ferguson, D. A. 4 Warren, J. B. 5 Tupper, F. G. 6 Sangster, J. W. 7 Pullen, H. 8 Salkeld, J. H. 9 McKillop, D. 10 Aird, D. A.	1 Warren 2 Pullen 3 Salkeld 4 Naismith	1 Warren, Pullen 3 Farlinger 4 Logan 5 Sangster 6 McKillop 7 Graham 8 McCallum	1 Warren 2 Meyers 3 McKillop 4 Ferguson
PASS.	III.....	1 McLauchlin, T. 2 Gamble, J. B. 3 Graham, D. 4 Johnston, J. 5 Freeman, G. 6 Shaw, W. C. 7 McCallum, G. 8 Crompton, E. 9 Logan, S. 10 Ponton, A. 11 Knapp, S. M. 12 Stewart, W. Dennis Jarvis Millar	1 Tupper 2 Sangster 3 Buxton 4 Graham, Stewart 6 McLauchlin 7 Johnston 8 Ponton 9 Freeman 10 Aird 11 Gamble, Meyers 13 Knapp 14 Crompton 15 McLellan 16 McCallum 17 Logan 18 Shaw, W. C. 19 Davis 20 Millar Dennis Jarvis	1 Johnston 2 Stewart 3 Salkelk 4 Gamble 5 McLellan 6 Ponton 7 Tppper 8 Davis 9 Buxton Dennis Jarvis Meyers Freeman Knapp McLauchlin Shaw, W. Millar	1 Fitton 2 Pullen 3 Farlinger 4 Naismith 5 Freeman 6 Logan 7 Crompton 8 Buxton 9 McCallum 10 Ponton 11 McLellan 12 Stewart 13 Graham 14 Aird 15 Tupper 16 Millar 17 McLauchlin 18 Jarvis 19 Knapp 20 Johnston 21 Sangster 22 Davis 23 Salkeld 24 Shaw, W. C. 25 Dennis

* Names unnumbered are those of Students who have failed to pass in the subject. Failure in two subjects and the Student is "plucked."

FIRST YEAR—*Continued.*

	CLASSES.	ZOOLOGY.	BOTANY.	VETERINARY ANATOMY.	VETERINARY MATERIA MEDICA.
HONOURS.	I.....	1 Carpenter 2 McKillop 3 Warren 4 Fitton 5 Meyers 6 Ferguson 7 Pullen 8 Aird	1 Carpenter 2 Fitton 3 Ferguson 4 Naismith	1 Fitton 2 Graham 3 Warren	1 Fitton 2 Naismith 3 Carpenter
	II.....	1 Naismith 2 Farlinger 3 McCallum 4 Johnston 5 Graham 6 McClellan 7 Ponton	1 Farlinger 2 Graham 3 Pullen, Logan	1 Gamble 2 Naismith 3 Carpenter 4 Ferguson 5 Millar 6 Pullen 7 Sangster 8 Freeman 9 Stewart 10 Johnston, Tupper	1 Ferguson 2 Pullen
PASS.	III.....	1 Buxton 2 McLauchlin 3 Gamble 4 Salkeld 5 Stewart, Logan 7 Sangster 8 Freeman 9 Knapp 10 Tupper 11 Davis 12 Shaw, W. C. 13 Crompton 14 Millar 15 Dennis Jarvis	1 McLauchlin 2 Salkeld	1 Logan 2 Farlinger 3 Crompton 4 Aird 5 McLauchlin 6 Shaw 7 Knapp 8 Salkeld 9 Davis 10 McCallum 11 Meyers 12 McKillop McLellan Dennis Ponton Buxton	1 Graham 2 Farlinger 3 Logan 4 McLaughlin 5 Salkeld

* Names unnumbered are those of Students who have failed to pass in the subject.
Students failing in two subjects are "plucked."
Messers. Miller, Denuis and Jarvis are "plucked."

APPENDIX E.

FINANCIAL TABLES.

Table I.—APPROPRIATION EXPENDITURE

For Eleven Months ending 30th November, 1877.

A.—*Maintenance Account.*

I. *Food.*			
Meat, fish and fowl	$1,094	34	
Bread and biscuit	473	77	
General groceries and butter	1,111	72	
II. *Household Expenses.*			
Fuel	822	70	
Light	96	62	
Laundry, soap and cleaning	61	12	
Furniture and furnishings	341	26	
Repairs and alterations	374	36	
III. *Business.*			
Advertising, postage and stationery	936	71	
Statistical Bureau	124	05	
IV. *Miscellaneous.*			
Medicines	56	89	
Maintenance of Chemicals	30	79	
Contingencies	383	05	
V. *Experiments*	686	90	
VI. *Salaries and Wages*	8,133	44	
VII. *Bonus to pupils*	680	96	
			$15,397 88

B.—*Capital Account.*

Library, Laboratory and Museum	$ 399	80	
Permanent improvements	3,668	98	
Implements	928	02	
Buildings	195	78	
Trees and Shrubs	283	38	
			$5,475 96

Table II.—Estimated Appropriation Expenditure for 1878.

I. *Food.*			
Meat, fish and fowl	$2,600	00	
Bread and biscuit	1,200	00	
General groceries	2,600	00	
Carried forward			$6,400 00

Brought forward		$6,400 00
II. *Household Expenses.*		
Fuel	1,600 00	
Light	300 00	
Laundry, soap and cleaning	200 00	
Furniture and furnishing	400 00	
Repairs and alterations	400 00	
III. *Business.*		
Advertising, postage and stationery	600 00	
IV. *Miscellaneous.*		
Medicines	60 00	
Maintenance of Chemicals	100 00	
Contingencies	600 00	
V. *Experiments*	600 00	
		11,260 00

SALARIES AND WAGES.

	No.		
President	1	$2,000 00	
Professor of Agriculture and French Languages	1	2,000 00	
Professor of Chemistry	1	1,200 00	
Professor of Veterinary Science and Practitioner	1	600 00	
Bursar	1	1.000 00	
Physician	1	300 00	
Farm Foreman	1	800 00	
Gardener	1	600 00	
Carpenter	1	600 00	
Matron	1	300 00	
Kitchen, Dining-room, and House Maids	7	750 00	
Laundresses	2	240 00	
Dairy-maid	1	120 00	
Engineer	1	400 00	
Assistant Do., for six months	1	150 00	
Messenger	1	150 00	
Temporary Assistance		100 00	
			$11,310 00
Carried Forward			11,260 00
			$22,570 00

CAPITAL ACCOUNT.

Library, Laboratory and Museum	$1,000 00	
Building South Centre Wing	5,000 00	
Heating	6,000 00	
Furnishing	7,000 00	
		$19,000 00

TABLE III.—Farm Income and Expenditure for the financial year beginning 1st November, 1876, and ending 31st October, 1877.

INCOME.	$ cts.	$ cts.	EXPENDITURE.	$ cts.	$ cts.
A. Cash Balance from 1875-76		474 74	*I. Farm Produce Consumed.*		
I. Farm Produce.			450 bushels Barley	225 00	
36 bushels Wheat	37 80		1500 " Oats	600 00	
670 " Barley	335 00		280 " Peas	168 00	
646 " Peas	426 87		300 " Carrots	60 00	
1574 " Oats	643 45		470 " Mangolds	70 00	
358 " Potatoes	254 20		7000 " Turnips	420 00	
300 " Carrots	60 00		Hay, Straw and Maize	855 00	
470 " Mangolds	70 50				2,398 50
7000 " Turnips	420 00		*II. Cash Expenditures.*		
Hay Straw and Maize	855 00				
		3,102 82	Labour	2,139 75	
II. Stock.			Stock	456 68	
			Feed and Fodder	797 83	
Fat Sheep—Christmas 1876	225 82		Seeds	496 43	
Service—Fall 1876	47 00		Repairs	473 09	
Sheep—Easter 1877	678 47		Manures	286 90	
Pigs—Spring 1877	100 00		Contingencies	83 68	
Wool—Summer 1877	152 96				4,714 36
Service—Fall 1877	36 00		*III. Placed on Farm or Supplied to College*		
Sale of Stock—Fall 1877	1,254 00				
		2,494 25	Increase of Stock	1,800 00	
Miscellaneous.			Manure	320 00	
			Milk and Eggs	160 00	
Increase of Stock	1,800 00		36 bushels Wheat	37 80	
Manure	320 00		250 " Potatoes	175 00	
Milk and Eggs supplied to College	160 00				2,492 80
Rent of Pastures	62 00		*IV. Balance on Hand.*		
Salaries paid by Appropriation	1,800 00				
		4,142 00	220 bushels of Barley	110 00	
			Cash in Notes	503 15	
					613 15
		10,218 81			10,218 81

TABLE IV.—Estimated Farm Income and Expenditure, from 1st November, 1877, to 31st October, 1878.

INCOME.	$ cts.	$ cts.	EXPENDITURE.	$ cts.	$ cts.
I. Field Produce.			*II. Field Produce to be Consumed.*		
300 bushels Wheat	300 00		Oats	360 00	
1600 " Oats	560 00		Barley	300 00	
600 " Barley	300 00		Peas	240 00	
400 " Peas	240 00		Turnips	900 00	
18000 " Turnips	900 00		Mangolds	500 00	
5500 " Mangolds	500 00		Hay	800 00	
600 " Potatoes	250 00				3,300 00
80 tons Hay	800 00				
		3,850 00	*II. Cash Expenditure.*		
II. Live Stock.			Labour	2,000 00	
			Feed and Fodder	430 00	
Cattle—Christmas, 1877	180 00		Seeds	300 00	
Pigs—Spring, 1878	150 00		Special Manures	300 00	
Live Stock—sold 1878	1,700 00		Repairs	500 00	
Wool—clip 1878	200 00		Contingencies	100 00	
Service—1877-8	100 00				3,630 00
Fat Stock—Easter, 1878	1,000 00				
		3,330 00	*III. Placed on Farm or Supplied to College.*		
III. Miscellaneous.			Increase of Stock	500 00	
			Manure	600 00	
Increase of Live Stock to be retained	500 00		Wheat, Milk and Eggs, to College	250 00	
Wheat, Milk and Eggs, to College	250 00		Potatoes	250 00	
Manure	600 00				1,600 00
		1,350 00			
		8,530 00			8,530 00

REPORT

BY THE

FARM SUPERINTENDENT

AND

PROFESSOR OF AGRICULTURE.

ONTARIO SCHOOL OF AGRICULTURE,
GUELPH, 30th November, 1877.

To the Honourable The Commissioner of Agriculture:

SIR,—In submitting the Third Annual Report on the outside departments of this Institution, I beg to bespeak a much greater measure of attention than was necessary last year. The growth of any enterprise implies progress, which, in our case, stands for improvements in organization, further facilities for education, better modes of imparting information, better knowledge of men and things, a clearer view of the association of science and practice, and more perseverance and systematic application in such combinations. With these our history should now be intimately related; if it is not so, I fear that public money and individual worth have been misapplied. It is therefore for the purpose of ascertaining these important facts that your attention is thus solicited. I am of opinion that our existence as a School of Agriculture is at that stage when sound public opinion should, or should not, give it the veto. There has been in the life of other similar establishments, in the United States and Europe, too much of that sort of indifference and heartless support, which, not only sickens those in charge, but which, at the same time, weakens their best efforts, and largely deadens all germination.

But more: have we not seriously compromised ourselves by what we have already done as a country? Is it not the case that our yield and quality of wheat is above the average of this continent, and shall it be allowed to decrease? Is our root cultivation not already famous, and can we allow it to fall off? Who can breed the general purpose horse so well and supply the old and new worlds with him? Who helps now to give the British peasant his beef, and the peer his $20,000 cow? In those and other respects Canada is forecasting her future—a future neither distant nor doubtful in magnificence, and unlimited even by what as yet we do not ourselves know—the great unsurveyed north and west

It is obvious then that we are bound to follow and help, or lead and teach. If the efforts of our School hitherto have been a success corresponding to circumstances, it would be well to say so, and at once give it a permanency and independence away from the reach of all interference other than that which looks directly to the country's weal.

With this introduction I am glad to be able to advise you of large and substantial progress in all departments—in what, and how much, it is now my pleasant duty to record under the following heads:

I. The Field.
1. Cropping Abstracts.
2. Detail Management.
3. Cost of Production.
4. Value of Labour.

II. The Live Stock.
1. General Condition.
2. Increase to Stock.
3. Management.
4. Feeding and Breeding Animals.
5. Animal Service to Public.
6. Wool.
7. Sales of Live Stock.

III. The Garden.
IV. The Mechanical Department.
V. Our Roots and Cereals.
VI. Experiments.
1. Feeding Sheep.
2. Feeding Cattle.
3. Field Plots.

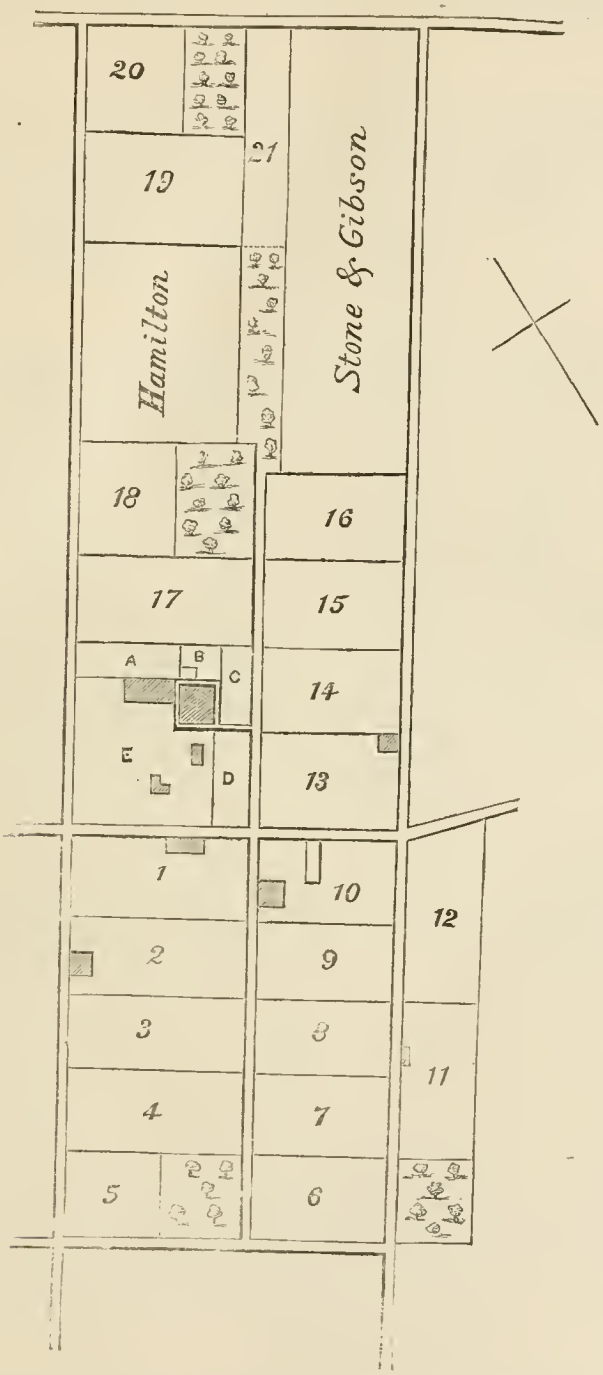
VII. The Centennial Seeds.
VIII. Outside Instruction.
1. General.
2. Judging Cattle.
3. Visit to Michigan State, Agri. College.

IX. Recommendations.
X. Summary.
XI. Inventory and Valuation.

I. THE FIELD.

In order to follow intelligently the notes under this branch, reference should be made to last year's report where a general description of the farm, the system of cropping now in use, and how the total area is accounted for, are fully given.

The accompaning plan exhibits an outline of the whole, with the reference numbers to fields, the letters A, B, C, D and E being respectively, the prospective Orchard; Paddock; Experimental Plots; Kitchen Garden, and Pleasure Grounds:



EXPERIMENTAL FARM GUELPH.

My next duty is to submit a table showing the area of each field, with the nature and quantity of crops cultivated during the past season:

CROPPING TABLE, 1877.

Field.	Area.	Extent of each Crop.	Nature of Crop.	Quantity.	Remarks.
1	19	10	Wheat	170 B.	Seeded for hay.
		9	Peas	225 "	
2	18	18	Barley	630 "	do
3	22	15	Oats	630 "	
		4	Rye.		
		2	Old grass.		
		1	Peas	30 "	
4	20½	14½	Old grass.		
		6	Peas	150 "	
5	13	13	Pasture		1st year.
6	20½	8½	Old grass.		
		12	Peas	250 B.	
7	20	20	Pasture		2nd year.
8	20	20	Hay	30 T.	do
9	20	20	Oats	700 B.	
10	19½	4½	Potatoes	675 "	
		6	Turnips	4596 "	
		9	Mangolds	6890 "	
11	19	19	Hay	28 T.	1st year.
12	21	4	Hay	6 "	do
		17	Old grass.		
13	23	3	Corn	80 T.	
		20	Turnips	15320 B.	
		3	Tares and oats.		
14	23	18	Oats	540 "	
		2	Swamp.		
15	22	22	Old grass.		Being stumped and ploughed.
16	21	21	Hay	16 T.	1st year.
17	22½	22½	Summer fallow.		
18	18	11	Wheat	200 B.	
		7	Old grass		
19	23	23	Pasture		do
20	13	13	Old grass.		
21	14	14	Hay	10 T.	do
	412	412			

CROPPING ABSTRACT.

There has therefore been

21	acres of	Wheat,
53	"	Oats,
18	"	Barley,
4	"	Rye,
31	"	Peas,
39½	"	Roots,
3	"	Corn,
78	"	Hay,
44½	"	Fallow,
56	"	Cultivated Pastures,
348		
64		Uncultivated.
412		

Making in all 348 acres under cultivation at present, and as it will be explained under the proper head that an attempt will be made to finish the stumping of fields 4, 6 and 15 for next season, the total area under the plough may be put down at 372 acres.

On comparing last year's table with this, it will appear that with the exception of field 8 the rotation of (1) Peas, (2) Wheat or Oats, (3) Roots, (4) Barley seeded, (5) Hay, 6, 7 Pasture, has been adhered to strictly.

DETAIL MANAGEMENT.

Any lesson from the doings of others necessarily lies in special management, and as there can be no real value in stating the results of certain work without details, I propose that you should condition that the Annual Report of the Ontario Experimental Farm embrace a full account of every point in the treatment, progress, and result of the cropping of each field—whatever that result may be. Acting upon this recommendation, and without further preface, I shall at once begin with :

Field 1.

The soil of this varies considerably, part being occupied by gravely knolls, part good sharp loam, and about two-thirds of it deap loam of a heavier character, that was underdrained two years ago. In 1876, ten acres were Turnips, Mangolds, and Carrots, and nine very old pasture—unbroken for 20 years. After these roots we had wheat this season, four spring varieties, thus :

Lost Nation	2.16480 Acres.
Odessa	1.00850 "
Manitoba	.95440 "
Golden Drop	5.60880 "

The preparation for these was part fall ploughing with ordinary plough, and the remainder with gang plough in spring, and all harrowed once previous to the drilling of grain ; drills 9 inches apart. Before sowing, two hundred pounds of salt per acre, broadcast with the hand were applied, the rate per acre for wheat being 1 bushel and 3 pecks. The land was then rolled and seeded by hand machine, with the following clovers and grass :

Common Red Clover	6 lbs. per acre.
Alsike Clover	3 " "
Pea Vine Clover	2½ " "
Timothy	6 " "

We had a good braird all over, seed being good, the land in excellent heart, and weather propitious. At and after heading, however, plants were caught in the lighter soils by drought, but depth and drainage kept up both straw and grain well. The Lost Nation and Golden Drop were best, the others being comparatively poor and badly rusted, but this did not appear to materially check its progress.

The produce per acre was

Lost Nation	25 bushels
Odessa	10 "
Manitoba	13 "
Golden Drop	20 "

For more specific account of straw, head and grain, see chapter on "Our Cereals of 1877."

Little can be said about the peas. The tough sod being ploughed in spring, and having to be harrowed, gave a very irregular seed bed. Sown with Prince Albert and Golden Vine varieties at the rate of 3 and 2½ bushels per acre respectively, the former was best in straw, the latter best in pods—being fuller bodied.

Field 2.

With the same cultivation as No. 1, and similarly laid down to grass, the crop here was six-rowed barley, from 2½ bushels of seed per acre, produce 35 bushels an acre, which may be classed as good No. 2 for grain ; straw, short ; soil, an irregular light and gravelly loam, in fair condition.

Field 3.

Much of this field is taken up with a large gravel pit and wet uncultivated spots—one-half of the surface, however, being a good loam. Four acres were under fall rye for fodder, which gave two cuttings on the parts early used. The new sub-division of the farm gave this field a stripe of old grass from No. 4, which was put to peas, as shown in table. Fifteen acres were under oats, of kinds thus:—

Potato	.78000 acre
Hopetown	.70000
Emporium	.86000
Tartarian	.63000
Brazilian	11.95000

Potato gave thirty, Hopetown 45, Emporium 55, Tartarian 55, and Brazilian 35 bushels per acre, over all, both straw and grain were good; as to individual characters, see "Our Cereals of 1877."

Field 4.

In spring we broke up six acres of this and cropped with peas, which returned 25 bushels per acre. The greater part of the land is new, was rough with stumps and stones, which necessitated much harrowing for a good seed bed among the tough old grasses; podding, good; straw, fair; soil, a good loam.

Part of Field 6 was also this season ploughed for the first time, and cropped similar to No. 4, but not so good a result.

Field 8.

Our hay fields were 8, 11, 16 and 21, all unequally bedded both in varieties and their distribution over the surface, in consequence of difficulty in securing plants, either from fall or spring sowing. Produce, 1½ ton per acre for 8 and 11 and ¾ of a ton from 16 and 21 per acre; the hay was top-dressed with 150 pounds of gypsum per acre.

Field 9.

Oats of the following sorts, sown with a broad cast machine, and afterwards also harrowed for better covering. A good average crop on flat well drained land of average loamy character in fair heart.

Tartarian	4.9	acres,	35	bushels per acre
New Brunswick	4.2	"	20	" "
Long Fellow	3.3	"	35	" "
Brazilian	8.8	"	50	" "

Fields 10 *and* 13.

These were our root division and subdivided thus:

Potatoes, 4½	acres.
Turnips, 2⅝	"
Mangolds, 9	"
Carrots, 1½	"

In potato cultivation we had three plans on trial: 1st. Drilling and placing the sets *below* the farm-yard dung; 2nd. Drilling and placing sets *above* manure; 3rd. Broadcasting manure, ploughing under, and planting sets in the common plough furrow—every third one. Drills thirty inches apart, sets twelve inches. Manure, fifteen waggon loads per acre, each load weighing on an average 3,000 lbs. of mixed horse and cattle manure, —not enough rotted however.

The first plan was 60 per cent. ahead of the second and equal to the third; the second had many blanks, and much irregularity in plant-coming. In arid climates it is

obvious that a tuber set upon farm-yard manure, lying in a body between drills of earth, and to be afterwards covered by said earth has much less chance of success than planting immediately upon the bottom of the drill below the manure, or by the third method referred to. The causes are plain enough.

1st. Want of moisture in immediate contact below.
2nd. Having to search for rootage.
3rd. Irregularity in depth.

All potatoes were remarkably equi-sized and unusually large, and are of average mealiness, with the best on gravelly knolls; kinds, Early Rose, Late Rose, Cromptons Surprise, Brunell's Beauty. Produce, 150 bushels per acre.

The Colorado Bug was bad, but repeated applications of Paris Green, mixed with Gypsum, saved the crop.

Turnips.

The cultivation of these demands more notice; all the land had been fall-ploughed, and on 21st May, at the rate of 15 loads per acre, well rotted farm-yard manure was scattered over the surface, then ploughed under, harrowed, and grubbed so as to thoroughly mix and pulverise, the land now received a rolling and an application of the following special manures, scattered broadcast by the hand, after intermixture in a heap.

Bone dust	250 lbs	Per acre.
Superphosphate	250 "	
Gypsum	100 "	
Salt	250 "	

Drilling and sowing began 11th June, and was finished on 20th June, having been undertaken according to state of weather, and progress as regulated by efficient work. For 20 days after this any stranger would not have ventured one dollar an acre for the chance of our season's crop of turnips; growth came so slow and irregular, so blanky and spotted that at one time we entertained serious thoughts of re-seeding part. Life, however, was but dormant, for with rains succeeding the long drought, we were secured in a full braird of plants of three distinct stages, which of course necessitated more than one thinning. Horse hoe cultivation in additiou to three hand hoeings, was regularly overtaken. After this, progress was vigorous, with an overrush of leaves and a tendency to thick necks, besides an unusual number of long, strong, rootlets that made harvesting difficult.

Thirty-five acres of roots is no unusual sight in some countries, and while not common in this, the experimental interest should not overshadow the success obtained in this case, as associated with ordinary farming, which it really has been. But one spot of sterile gravel broke the close mass of green that lay over two fields of as fine a crop of Swede turnips as need be desired. The produce of each sort is fully tabulated in "Our Turnips and Mangolds of 1877," the average being 766 bushels per acre.

Mangolds.

The management of these, in regard both to cultivation and manuring, was similar to turnips, with the exception of an additional quantity of salt, and less bone dust. Sown on 24th May, they came very irregularly, and did not make up as the turnips did—many blanks remaining all season—though odd plants kept appearing at all times, but mostly too late to deserve attention. This occurred largely where the experiment of non-steeping the seed was tried. That thoroughly soaked came earlier, more regularly, and more profitably. Seed was not pure, and may have been old also. Average produce, 777 bushels per acre.

The harvesting of so many roots has been a matter of considerable difficulty. When our cellars were filled, and some fifteen acres still untouched, we had no resource but to pit in the fields. It is a fact worth noting, that owing to the uncertainty of weather during the latter part of October and first week of November, the rush of work in storing of roots greatly shortens bulk, as, when leaves begin to decay, and the natural final swelling of the bulb is afoot, the necessity for their preservation comes on, and immature roots are harvested.

Carrots.

Our field carrots were an entire failure. On 28th May we sowed the White Orthe, White Belgian, Altringham, and Giant White, and few plants of any kind ever appeared. Weather and inferior seed may be associated in this, cultivation having been liberal, upon a good deep loam. An unusually good catch of Greystone, and some Aberdeen Yellow Bullock Turnips, took the place of this failure, and added largely to our bulk of roots, as shown in table.

A broadcast sowing of Indian corn for fodder, gave over 80 tons from three acres of this field, (13.)

Field 14.

Here Brazilian and New Zealand Oats constituted the crop. Formerly a rough and wet field, but part drained and summer fallowed in 1875-6, we had heavy straw upon what was a first cropping, and over all, a large average both of straw and well-filled grain. Much was badly lodged by heavy rains. The three acres of oats and tares for fodder gave thorough satisfaction—two heavy crops on early cut parts. We have manured and ploughed eleven acres of this in preparation for next year's mangolds.

Some natural hollows in connection with the newly reclaimed parts of this field, failed to maintain a green blade after drought set in—the cause, simply want of moisture in a deep loose vegetable moss, not yet mould.

Field 18.

With like cultivation and management as given the wheat of No. 1, the following kinds occupied this field.

Rio Grande	1·7	acres	producing	15	bushels per acre.
Clinton	1·1	"	"	15	"
Egyptian	·5	"	"	20	"
Golden Drop	·8	"	"	20	"
Russian	·9	"	"	25	"
Swamp	·1	"	"	18	"
Red River	·1	"	"	12	"
Fife	5·7	"	"	20	"

The soil is a light clay loam in good fertile condition, and exposed, except on the South-east. On 9th August, the following memoranda were taken:

WHEAT.	Rust on			State of Maturing.	Evenness of Crop.	Straw.		Shelling of Grain.	Purity.	Tillering.	Mildew.
	Head.	Leaves.	Straw.			Brightness	Strength.				
Limit of goodness or badness. .	5	5	5	10	10	10	10	5	10	10	10
Rio Grande	1	3	2	4	3	3	2	3	7	6	0
Clinton	3	5	3	3	3	2	5	3	5	6	0
Egyptian	5	1	2	7	6	5	6	2	3	3	5
Golden Drop	0	3	3	3	4	2	3	2	2	4	0
Russian	0	3	5	3	4	2	3	2	2	4	0
Swamp	0	3	0	4	5	1·5	4	3	4	5	0
Red River	0	5	3	4	4	3	2	2	6	4	0
Fife	3	3	5	1	3	4	1·5	1	2	6	3

Here the condition of the crops can be ascertained at a glance:—The worst rusted was Rio Grande, the least the Swamp; the Egyptian was earliest in maturing, and showed the most even crop, and had the best straw; the earliest to shell was the Fife; the Rio Grande

was most pure, and with three others tillered best, the Egyptian tillering least, and was worst with mildew. The condition of the grain will be mentioned in the cereal table.

Field 17.

This hot-bed of thistles has been repeatedly ploughed, and on one half of it, when in sod in July, we attempted an experiment in a catch crop of rape, which we purposed eating off with sheep in the fall. Throwing over the rough surface as flat as possible with the common plough, and harrowing, we drilled rape two feet apart in order to keep down weeds by horse hoe cultivation. Very few plants came up in consequence of drought, and no doubt by the presence of the open and dry soddy bottom. As showing that the failure was owing to these facts and not any spuriousness in seed, we were incidentally put in possession of a valuable lesson. The previous fall students had been trying several ploughs on sundry spots of the field previous to a Match, and as forming part of the rape experiment these spots were also seeded. *In every case of the fall ploughing the rape came regular and strong.*

On the other half of this field, Clawson, Silver Chaff, and Gold Medal (fall) wheats have been sown, have come away regularly and are not too proud in preparation for severe weather, by having been sown a stage later than the usual practice. As I write (26th Nov.,) the braird seems safe, is not acquainted with the Hessian Fly, but is slightly rusted.

Cost of Production.

Having thus exhausted our detail management of field cropping, the question naturally arising at this stage is,—What is the cost of production? Herein lies, I need hardly say, much of the marrow of all rural economy, and unless we can show reliable and financially satisfactory figures in every case, subject, of course, to unforeseen circumstances, our lessons will be of no use to the public, as well as dangerous to students, and without credit to ourselves. All this, be it remembered, has no direct bearing upon the other question,—Is, or can, an Experimental Farm be made self-sustaining? There should, in the future, be no difficulty in separating two such distinct problems as education and ordinary farm work even in our examples, but at present there are difficulties, and until they are removed it is unfair to expect any solution. Need I point that our fields are yet insufficiently drained, are not all under a regular course of cropping, have broken, uncultivated spots, and are still much overrun by weeds? No doubt I could even now make you a column or two of figures that, so far as figures go, would show conclusively our farm to be a profitable investment. There are few things so simple to construct as balance sheets, and as few things so deceiving—not always by reason of purpose unrealness, as by looking through an enthusiasm that enlarges and misplaces. For the next three years, then, I am of opinion that any figures of cost will be unnecessary.

Value of Labour.

At the same time, in order to give an idea of the amount and value of labour being expended in making things model by the students and ordinary farm hands, in addition to sums for permanent improvements, the following memorandum will speak for itself:

Filling open Ditches	30 days' work.
Removing old fences, stones, &c.....	150 "
Removing stumps and levelling.....	510 "
Total	690 days

of one workman, or equal in value to $700.

We have also overtaken considerable additions to the drainage of fields, 3, 4, and 15, with the money obtained for the purpose, the students assisting as opportunity occurred.

II.—The Live Stock.

It will naturally be expected that this should be one of the most interesting chapters in the history of the farm for the past season, especially upon the back of the importations in

September, 1876. If it fails to be so, the fault will be mine, as material in so many shapes is on hand that a good-sized volume would not exhaust what is generally considered valuable by most breeders, *i. e.*, not only detail management but the condition of animals during winter and summer, the result of breeding in the different classes, diseases, deaths, and any peculiarities of the several breeds. There should be no hesitation in giving facts on such important subjects, as I presume one of the objects of the farm is to collect and record for the use of the public, failures and success, our aim being to avoid what is superfluous.

Cattle.

Short Horns:—

Our thorough-bred imported Bull, "Duke of Bedford" (36,466), now two years and eight months old, has increased in weight 270lbs. since his arrival on 20th September, 1876, a quantity that could easily have been 100 per cent. more had we followed the usual practice of show feeding. He has kept the superior handling that has always characterised him, and, what is important among so many students and visitors, has also kept his good temper. Our want of suitable accommodation for bulls has made bull management less creditable than I would have wished—unnaturally long hoofs, more scurfyness, even with currying, and more hot blood, than would be were the animals at large in loose boxes, and certainly more untidyness, from the same cause. It becomes a question worthy of note whether animals imported from a temperate climate, to one of extremes, will maintain their original characteristics,—general form, hair, skin, colour, &c., better or not, if continuously housed on the one hand, or grazed in summer on the other. And indeed the important consideration of regular and safer breeding is perhaps one of the first in the question of soiling *versus* grazing.

The Cows Rosalie and Ury 11th, both imported, have shown some difference in disposition that is worth noting. The former was got as a heifer in rather high flesh by preparation for exhibition at the Highland and Agricultural Society of Scotland, and since the sea voyage has never been thoroughly on her feet, and has not made up in size as was expected,—the while that general health and breeding do not fail. On the other hand, Ury, having been accustomed to less pampering on the share-and-share-alike of Aberdeenshire management, has not only bred well, but, for a young cow, is showing a development that bids well as a near relative of the Ury that took the diploma at Philadelphia last year. For a description of their calves see "Increase to Stock."

Our home-bred bulls, Cambridge Chief, Senator, and Cambridge Duke, have made fair progress—Senator possessing a frame and points that speak of future merit, despite the colour that in these times condemns him. I have failed to get one sound reason for the prejudice that at presents exists against white cattle, especially in America. Any delicacy in constitution is but a theory built upon the idea that white or paleness invariably accompanies sickness in all animals,—nothing more. There can be no objection to a fashion in colours, by the taste of the breeder, or in those who purchase; but we must have *facts* for any inferiority. It is well known that most of the eminent short-horn progenitors were pure white, and looking at the prize rings in Britain now, it will be found that white still takes off most of the honours.

Our home thorough-bred cows are Louan of Brant 5th, Martha, and Cambridge 10th—all in excellent breeding condition. Louan is such a heavy milker, that flesh for show purposes, while breeding, need not be looked for, even were it desirable. It may be interesting to mention that a late visitor, a good old country judge, valued Cambridge at $1000; she cost us $450. Lady Elizabeth, from Martha, by Cranberry Chief [2922] is offering well, though faring alike in the fields with the common grades: she is our only thorough-bred two year old heifer.

Herefords:

The Duke of Connaught (4528), being now three years and eleven months old, has necessarily not added so much to weight compared with younger animals—from 1475 to 1658 lbs., but his better maturity has given a finish that contrasts well with the others as a common example lesson to the school. With reference to this bull I may be pardoned in saying that some good judges, from Britain and this continent, have been asked to point out any fault he possesses,—and when all that can be said is, that his head and horns are *too fine* as a characteristic of the breed, you will have an idea of his individual merits.

His produce this year will fully maintain such commendation,—see "Increase to Stock," and "Sale of Live Stock."

The cows, Princess Mary 2nd and Heatherbell, have improved both in size and flesh since importation; are evidently excellent grazers, and have already established themselves as first-class nurses.

Devons:

Prince Albert Victor has increased from 762 to 1100 lbs., and, being now two years and three months old, is not likely to be a heavy animal of the class. The judgment of the Royal Agricultural Society of England last year has not been misplaced in his case, as a sweeter, more even, and fully developed Devon according to age is not common.

The heifer, Nellie, is in calf to Mr. Rudd's "Sir Charles," has kept in superior condition, and has more than doubled her weight within twelve months.

Ayrshires:

It is quite likely that if put into the ring here, our bull of this breed would meet with the same disfavour as in some Short Horns, in point of colour, but that it would only be a prejudice is certain by what he has done in Scotland in always taking a first or second prize when in competition with the best of his class. He has kept a steady progress from 1,305 to 1,541 lbs., and fortunately has no tendency to the fatness that spoils. As a representative of the true and large milkers, Sir Walter has already proved himself a good getter.

The cows Beauty and Flora 3rd of Drumlanrig, have not yet had an opportunity of proving their qualities, as, unfortunately they both slipped their calves at six and one-half months, from a cause or causes apparently in no way connected with any contagion or infection on the premises. Thus, Beauty had but ten days' rest from the old to the new milking. Juno 2nd., as a heifer when imported, has since dropped a calf to Sir Walter, at full time—a very large bull calf that did not live long. Her rush of milk caused sickness for a time, and so altogether our present report on Ayrshires, though meagre, is not disheartening for the future, for the reason that health is good and breeding certain. We have been offered a considerable profit on the price paid for Beauty.

Angus or Aberdeen Polls:

So far as I am able to ascertain, we are the only breeders of this class in Canada. My surprise is that we are so; that earlier introductions have not been made, upon the well-established fact of the possession of almost every property that commends itself in animal life, second only to the Short Horn in the power of improving other breeds by crossing, but certainly superior in hardiness, and not second in early maturing and weight of flesh. Need I point to the annual competition at Christmas shows in England, where Angus or Aberdeen Polls have repeatedly been awarded the highest honours; or the important and significant fact that animals costing $350 last year now fetch $450 under similar circumstances.

I have pleasure therefore in calling special attention to our four animals of this breed: Gladiolus (1161), now two years and six months old has fallen off more in flesh than is desirable, owing to a peculiar unsettled disposition, but health and handling are good. Weight 1428 lbs.

Leochell Lass, 4th, has maintained her very superior square-evenness, along with remarkable docility. Unfortunately she aborted her calf at six months, so that any chance of judging of produce is now left to June or July next. This cow was lately valued at $470 by a competent judge. Eyebright has changed in shape and style so much for the better from her heiferhood that we can now speak of two imported cows apart from the fact that she has given us a remarkably fine heifer calf, for an account of which see "Increase to Stock."

This cursory glance at the condition of our cattle would be incomplete without reference to the grades. Strong, roomy, and good breeders, we have had choice of several good calves by the thorough-bred bulls, keeping heifers when good, and making steers for fattening. The two year old fat steers now in hand for next Christmas will show the character of this first cross, that it is not so difficult or expensive to make 1,400 lbs. live weight per head from the produce of good grade cows and a thorough bred Short-horned bull. The heifer calves are not yet of age to demand much notice, the oldest is in calf and has all the appearance of an average thorough bred.

SHEEP.

Leicesters:

Our single specimen of the improved English, Bokewell Leicester—a three shear ram of second class quality—has adapted himself to changes, apparently with greater ease than most of the other sheep, and retains the soda-water-bottle outline that distinguishes the type; weighing 230 lbs., he has the unusual heart-girth of 50 inches, which is proportionately more than any other on the farm.

The Border Leicester ewes, for the most part, have not made their mark in the way anticipated, for a reason not chargeable to any Canadian management, but the ram happily is already well known and highly valued. All breeders and judges of the class visiting from the United States and the Dominion concur in pronouncing the sheep almost perfect. Girthing 51 inches, weighing 290 lbs.; brisket 10 inches forward of arm and 14 inches from ground, he is clothed all over, is active, and a good getter. See "Wool" for weight and quality of same in this and other cases.

The other Leicesters, of and from earlier importations, have kept good strong frames, with excellent fleeces, and have been giving lambs with even superior coats by a ram of first class pedigree and individual worth. What the shearling rams sold recently, have since done at Agricultural shows, is evidence of this commendation.

Cotswolds:

This flock has been a success; the shearling ewes, bought in 1874, have regularly produced good average stock, many superior, superior not only in frame, but in weight and quality of fleece by rams from both Lane and Walker, of England. The shearling ram imported last year, having been long leg-sore after the journey, became with the season's work rather flanky and dry coated; now, however, he is showing the points and quality of the Lane stock, is splendidly woolled, girths 48 inches, weight 275 lbs., and stands 32 inches in height at shoulder.

Another long wooled breed is the West Dereham Abbey type of Cotswolds and Lincolns of which we have a ram and five ewes, besides lambs. These were established by Hugh Alymer, of Norfolk, England, by the use of Cotswolds and Leicesters upon a Lincoln base—the principal object being weight and quality of wool. The ram which resembles a Cotswold more than a Lincoln, has kept in full condition, weighs 292 lbs., girths inches, and stand inches high. The ewes seem proportionately small to the male, are very neat, compact, and evidently good nurses. Though disposed to class these as Cotswolds, yet with the fact of their being allowed to compete in the Lincoln class in England, I consider it advisable to make no alteration at present.

South Downs:

We have been specially fortunate in the possession of a really good ram, by purchase from F. W. Stone, of Guelph, who imported from Sir William Throckmorton, England. I wish to draw particular attention to the adaptibility of the South Down to this district, a circumstance to be accounted for probably by our height above sea and lake level, and that we overlie a limestone formation. The habitat of these sheep while free of much continuous frost and snow, is yet high lying, exposed, and composed of chalk, or loose limestone. Of all our breeds here no lambs come so early-strong, none are hardier and make more rapid progress in proportion to size than the South Down; they are also less liable to disease, are better searchers of food, and, as is well known, have a world wide reputation for superior flesh.

Oxford Downs:

Another class of short wools is the Oxford Downs, which are of a much larger type from crosses by South Down, Hampshire Down, and Cotswold, as suited the purpose of the breeder in making a combination of extra flesh, wool, and hardiness, or shall I say, an attempt at a model in the carcass of the Leicester, the wool of the Merino, and the hardiness of the South Down? The ram, two-shear, weighs 265 lbs., girths 47 inches, and stands 26 inches in height, the ewes are very symmetrical, and in comparison with other breeds are heavier in relation to the male.

INCREASE TO LIVE STOCK.

I shall show this under the two heads of "Our own breeding" and "By purchase" —keeping, of course, within the period of my own management.

Our own breeding:

SHORT HORNS.

1876, April 26th.—SENATOR, white, out of *Louan of Brant* 5th, by *Baron Pawlett* [2716], 16,241.
LADY ELIZABETH, roan, out of *Martha*, by *Cranberry Chief* [2922].
Sept. 10th.—CAMBRIDGE DUKE, red and white, out of *Cambridge* 10th, by 3rd *Duke of Springwood* [3087].
Decem. 8th.—MANRICO 2nd, red and white, out of *Rosalie*, by *Manrico* (26,805).
1877, April 16th.—EMPEROR, red and white, out of *Martha*, by *Cambridge Chief* [2922].
May 4th.—LOUAN OF GUELPH, red, out of *Louan of Brant* 5th, by 3rd *Duke of Springwood* [3087].
July 10th.—THE MODEL DUKE, roan, out of *Ury* 11th, by *Duke of Bedford* (36,466).
Sept. 18th.—CAMBRIDGE QUEEN, red and white, out of *Cambridge* 10th, by *Duke of Bedford* (36,466).

HEREFORDS.

1876, Dec. 29th.—DUKE OF ARGYLE, out of *Princess Mary* 2nd, by *Duke of Connaught* (4528).
1877, Jan. 9th.—DUKE OF MANCHESTER, out of *Heatherbell*, by *Duke of Connaught* (4528).

ANGUS, OR ABERDEEN POLLS.

1877, ————.—EYEBRIGHT 2nd, out of *Eyebright* (3001), by *Sir Wilfred* (1157).

With reference to these additions to our herds, permit me to note that *Senator* is a deep compact animal that, with more flesh, would not stand third-rate in any ring; that *Cambridge Duke*, though rather leggy and somewhat irregular by youth, is of good quality; that *Manrico* 2nd is a lengthy one, of good style and fair promise; that *Lady Elizabeth* is making good progress though underfed to many ideas, and points as a valuable addition to our breeding stock.

It is gratifying to be able to state, that, in the estimation of the public, the Hereford calves are not inferior to any of the class in the country—to say more would be superfluous, to say less would be unjust—not forgetting, at the same time, that public opinion is often a very unsafe foundation to build upon.

The merit of the Aberdeen polled heifer, *Eyebright* 2nd, may be briefly disposed of by reference to the fact that a recent visitor—a well-known Aberdeen judge—considered her well worth $200; for roomyness, evenness and style, with a beautiful head and neck, she is unusually pretty; her sire is *Sir Wilfred* (1157), that has twice taken first honours at the shows of the Highland and Agricultural Society of Scotland; length from shoulder to tail, 3 feet 4 inches; girth, 5 feet 3 inches; weight, 625 lbs.

The grand result of our cattle breeding may be set down as a fair success in numbers, but out of the eleven only four are females, and thus we will be later in completing the standard herds the farm is capable of maintaining.

SHEEP.

From forty-three Cotswold ewes, inclusive of the Deerham Abbey Long Wool, or Lincoln, we have seventeen ram and twenty-six ewe lambs, which came in the end of March and first week of April.

From nine Leicesters, English and Border, we have six ram and six ewe lambs.

From ten South Down ewes, we have five ram and seven ewe lambs, which came in February. Without extra feeding two of the ram lambs now weigh 165 and 140 lbs. respectively.

From three Oxford Downs we have two ewe lambs, twins, one of the ewes did not hold and another aborted four weeks before time.

So then, the Leicesters are in the lead with 133 per cent., the South Downs show 120, the Cotswolds 100, and the Oxford Downs 66 per cent., all alive and doing well.

Pigs.

Our five Berkshire brood sows brought up fourteen boar and nineteen sow pigs from five litters; the two Prince Albert Windsors have had a litter each, from which we count two boars and eight sows.

Poultry.

Without particularizing, for reasons mentioned under management of this branch, it will be enough to say that while we have been able to secure, by our own breeding, and on shares with various parties, a few specimens of each kind, there has not been that sure and vigorous hatching which characterizes out-door management.

Dogs.

I am aware that the purchase and importation of Scotch collie dogs for this farm, has been looked upon as something outside its action, something not needed by the country, and therefore a misapplication of funds. I gave, as shown in last year's report, $81 for two dogs, and one bitch then a pup. Two litters a year is common with dogs, but restricting to one, as in our case, what is the position? The sale of a litter of seven shows $67 as the public opinion on the subject; need I add more?

Horses.

We have no pure bred horses so called; general purpose Canadian, and four-fifths bred Clydesdales are the two stamps among the fourteen in our possession, which, as a whole, are much superior to the average of the country, We have bred one filly and two colts from two of the best cross-clyde mares, the former a very sweet strong chunk, and the others too heavy for general purposes.

Management of Live Stock.

We keep seven objects distinctly in view:—

1.—A vigorous growth of young animals without forcing.
2.—A full condition of all breeding animals, male and female, without over feeding.
3.—Change of food according to age, state of breeding, and season of the year.
4.—Quantity, according to age, size, and object of individual animal.
5.—Economy of food, as regulated by markets.
6.—Confining food as much as possible to what is produced on the farm.
7.—Regularity.

IN WINTER WE GIVE

Cattle a mixture of cut fodder and roots, with meal, in the following proportions:—

Hay	1 part	by weight.
Straw	2 "	"
Indian Corn fodder	2 "	"
Turnips	5 "	"
Beans, Barley Meal	a sprinkling.	

10

Mangolds are kept until late. Some calves get a little oil cake.

Sheep.—Whole peas and straw, a few oats and peas, and a little bran with pulped turnips and mangolds; at times a little hay.

Horses.—Bran, hay and oats, with boiled barley, carrots and bran.

Pigs receive heated house refuse, raw peas and barley-meal-broze.
Poultry.—Wheat and barley refuse, peas, cabbage, bran, &c.

IN SUMMER WE GIVE

Housed Cattle.—Rye fodder, clover, Indian corn fodder, tares and oats; all are grazed except bulls and calves.

Sheep on poor pastures a little bran and oats or peas, with rape on ground in fall.

Horses.—Hay and oats, with tares and oat fodder.

Pigs, same as winter, in addition to some green fodder, and a run in fallowing fields or stubble, and rich uncultivated hollows of old pasture.

Poultry, same as winter, and at all times getting access to sandy gravel, earth, and a few bones.

Steaming Food.

Last winter we steamed the cattle food by the following arrangement:—With a six-horse power vertical boiler, from Leonard & Son, of London, Ontario, steam is generated in a part of the premises distant from barns, and conducted under ground by 2-inch east iron pipes encased in double boxes of sawdust packing, which are surrounded by straw in the outside drain. Both wood and coal are used as fuel. In the feed room, 150 feet distant, are two boxes of 2-inch pine, 8x4x5 feet, firmly bound with iron and wooden clasps, having top and end doors. The bottoms of these boxes are double, and enclose a circle of perforated pipe which is connected with that from the boiler. These boxes, or vats, are filled by the top, and both doors being firmly wedged, steam is opened, and on an average, thirty minutes suffice to thoroughly soften the whole mass of cut hay, straw, corn, and turnips. All animals soon become fond of steamed food, the material being sweetened and made easier of mastication; but whether as healthy for all purposes in animal life, it is yet our province to determine. Meantime we can assert that what is usually called rubbish—chaff, rotted roots, unsound straw and hay, can be safely used when steamed. More details, with cost and results, in next annual.

Feeding of Breeding Animals.

This is a fitting opportunity to make a strong representation on a vitally important subject. One of the evils of these times of Short Horn fevers, and public competition with animals of all sorts, is the high or over-feeding of those set aside for breeding purposes. Many breeders can point to cases where by an innate fecundity, or the possession of special reproductive powers, both male and female take no harm from the artificial life to which they are treated; that this is the exception however, and not the rule, is the serious experience of most exhibitors, of those who say "I have no chance unless I do like my neighbours." This, unfortunately is so far true, for all men are not competent to judge between animals with and without much fat—many are afraid to submit their judgment to the easier critic upon a lean beast—fat on the other hand conveniently serving as a blind, though of itself not always so. I am aware this subject is not a new one on this continent, and certainly not so in Europe, having again and again been zealously handled at various agricultural meetings. But there has been no thorough action; while it is a fact that not a year passes without the warning of individual writers, the disappointed cry of unsuccessful exhibitors, and the faint and uncertain response of numerous clubs, all acknowledging the evil but all afraid to grapple with it, there is still no provision for the exclusion of *breeding animals shown in an improper state of fatness.* It is invariably laid over as rathe dangerous or too difficult of solution.

But want of action does not detract from the interest that still marks its history, in which it seems almost superfluous to sketch how these marks arise. Need I ask if the farmers of Canada are unaware of the evils that arise from the unnatural process of getting-up to a show condition, animals that are held as breeders, male or female, practices that are the decided cause of non-production incapacity of the male, weakness of progeny, irregularity in birth, indirect cause of abortions, more liability to diseases and inability to withstand them, deterioration in nutritive value and wholesomeness of flesh, giving more room for fraud in exhibiting, difficulty in judging, and much unnecessary expense. I have said thoroughly, because at some exhibitions it is *understood* the judges have power to reject animals of the description named, or that they will not be allowed to award where overfeeding is evident. All this is without any clear instructions, leaving an uncertain power in the hands of men who, not always inde-

pendent, uninfluenced, and uninterested, willingly non-interfere where any indefiniteness exists.

I consider the present state of matters on this subject a standing protest on the intelligence of modern farming. The cure is simple: Let Agricultural Societies appoint the right judges with full powers, their decision being final.

ANIMAL SERVICE TO PUBLIC.

In this I am glad to be able to report a largely increased desire to secure service from the most of our breeds of cattle, sheep and pigs.

But for the long distances from some of the principal breeders of Short Horns, our Duke of Bedford would already have scores instead of thirty cows on his list. It has given us much pleasure to exchange service with two of the principal Hereford herds in the Dominion, as well as with one of the best of the Devons. Some prefer the Ayrshire for their grade and Canadian cows, with the view to milking properties, but none as yet have honoured the Aberdeen poll with a $5 fee.

I presume the intelligent Canadian farmer knows well that the heaviest beeves in Britain are crosses by thoroughbred Short Horn bulls on the Angus or Aberdeen polled cows, and that one of the best combinations of beef and milk is a Short Horn on an Ayrshire cow. It cannot be out of place to mention that for many years I had the management of a herd of the latter cross in Scotland and took prizes with fat steers of the same.

Our $3 fee per head for sheep has had no effect in checking the demand for Border Leicester service—a whole flock having come as far as forty miles. Others have been more limited, for the Cotswold, South Down and Oxford Down, in the order named, and but one breeder patronizing the Bakewell Leicester.

Some thirty sows have come to our "Prizeman," and invariably have given unusually well marked and pointy litters. Several white sows of any breed, size, or quality, have taken our Prince Albert Windsor boar.

As I find many are ignorant of the pedigree of our male animals, what follows will save trouble in future:

Short-Horns:

Dam.		Sire.		Breeder.
DUKE OF BEDFORD			(36,466)	
	Got by	King Tom	(31,521)	T. C. Booth.
Louise	"	Prince Louis	(22,603)	
Beauty	"	Fitzclarence	(14,552)	
Miss Folly	"	Prince Alfred	(13,494)	
Folly	"	Paris	(7,314)	
Butterfly	"	Vaogaurd	(5,545)	
Lady Bird	"	Robin Hood	(4,970)	
Millicent	"	Anticipation	(750)	
Folly	"	Emperor	(1,014)	
	"	Young Windsor	(699)	
	"	Windsor	(698)	

Hereford:

DUKE OF CONNAUGHT			(4,528)	H. M. The Queen.
	Got by	Alexander	(3,653)	
Sultana	"	Prince Leopold	(3,351)	
Princess Teck	"	Ajax	(1,843)	
Lupa	"	Attingham	(911)	
Grey Dahlia 2nd	"	Walford	(871)	
	"	Wonder	(420)	

Devon.—PRINCE ALBERT VICTOR (——) H. M. The Queen.
Got by Napier (888).
Rosebud, got by Prince Imperial (1189).

Ayrshire.—SIR WALTER. Duke of Buccleuch.
Duchess of Drumlanrig.
(As yet no herdbook for Ayrshire Cattle.)

Angus or Aberdeen Poll.—GLADIOLUS (1161). Earl of Fife.

Got by John Bright (642).

Carriemulzie (1701). Laird (434).

Bess of Bogfern (1225). A pure bull.

Jane of Bogfern (540). Grey-breasted Jock (2).

Leicester Sheep.—BAKEWELL, from Thomas Stamper, of Highfield, Yorkshire, England.

BORDER, from Thomas Ferguson, of Kinnochtry, Scotland.

Lincoln.—(Cotswold ?) from H. Aylmer, of Norfolk, England.

Oxford Down.—From H A. Brassey, of Aylesford, England.

South Down.—(Being selected from England.)

Cotswold.—From Lane, of Gloucester, England.

Prince Albert Windsor Pig.—From H. M. The Queen.

Got by Sir Roger.

Prim " Sam.

Bess " Duckering.

Betty " Buckland.

Berkshire Boar " Prizeman."*

" Prizeman" was bred by Mr. E. Tombs, of Shelton, Bampton, England ; imported by Messrs. Birrell & Johnston, Pickering ; and is full brother to Messrs. Snells' four *Belles of Shelton* and *Royal Tombs. Prizeman* was sired by *Baron Southerop*, dam by *Lady Kencot* by *Captain Langford*, &c.

MILK.

As yet no special record has been kept of quantities or quality, under particular conditions of pasture, and winter feeding, with any breed. On this important subject we are likely next spring to be in a better position to overtake certain experiments in connexion with the establishment of the Cheese and Butter Factory.

The Grade Durham Cows, during Summer—May to October inclusive—gave an average of 9½ quarts per head per day.

OUR WOOL.

It would be easy to leave this out altogether, or at the least to say that so many sheep gave so much wool, and that the quality considering the conditions was very fair—that its soundness, colour, softness, and fineness were most creditable. I cannot so dismiss such an important subject, however, and propose to enquire into some of the more valuable characteristics of this article of produce. In order to base arguments upon data that are at once original and reliable, I have taken the trouble to draw up the following table relative to the wool of our different breeds of sheep :—

TABLE SHOWING SOME CHARACTERISTICS OF OUR 1877 CLIP OF WOOL.

BREED.	Weight of Animal.	Weight of Fleece.	Per-centage of Wool to Weight of Animal.	Length of Wool in inches.	Strength of Fibre.	Elasticity of fibre.	Spirals per inch.	Remarks.
	lbs.	lbs.						
South Down	228	8	3½	3½	44	46	13	Ram, three shear.
Oxford Down	261	11½	4½	4¾	87	36	14	do two shear.
Do	.....	10½	.....	5¾	75	30	14	Ewe, do
Cotswold	270	15½	5½	8	72	19	7	Ram, imported.
Do	283	20	7	10	150	20	12	do Canadian.
Do	.....	.....	.....	14	112	7	3½	do Lamb.
Leicester, Bakewell	213	10	4½	8	69	12	4	do two shears.
Do Border..	288	15½	5 1-5	9½	112	16	4	do do
Do Lincoln..	285	17½	6	11	125	26	5	do do
Lincoln	289	19	7	9½	125	17	5	do do

* Purchased in February last, when five months old, for $150, and now hold offers of $250 for him.

In this it will be observed we have seven specimens of long and three of short wools, that all the animals are rams, with the exception of one, and all two-shear, with the exception of three, thus allowing a favourable comparison as regards age. The weight of fleece refers to the heaviest in each case, the percentage of wool to weight of animal is perhaps easier understood by saying that for every 100 lbs. of flesh there is, in the case of the South Down for example, 3½ lbs. of wool ; the length of wool is, as taken after clipping and without being stretched out; strength of fibre means the breaking power of a single fibre, 100 being equal to one ounce avoirdupois ; elasticity is the difference between the wool with its spirals on the one hand, and when drawn out to full length on the other, for example, the length of the South Down is given as 3½ inches, add to this 46 per cent. of itself and we have fully 5 inches as the actual length of the wool. I know of no better practical way of showing the stretching property of wool; the number of spirals per inch is given in the eighth column.

Let us now make some comparative notes, with the proviso that all the sheep were similarly housed, and otherwise underwent similar treatment.

With reference to long-woolled sheep and the relation between weight of carcass and weight of fleece among the two-shear, it will be observed that considerable difference exists. The Lincoln cross, and the Canadian Cotswold take the lead in producing 7 lbs. of wool to every 100 lbs. of flesh, the least being the old Bakewell type, which is only 4½ or exactly equal to the Oxford Down.

Observe how exactly the strength of fibre follows this weight of wool thus : 1st. Canadian Cotswold ; 2nd. Lincoln cross, and Leicester Lincoln cross equal ; 3rd. Border Leicester; 4th. Imported Cotswold, and 5th. Bakewell Leicester. Is there then, or should there be another relationship between weight and strength ? If certain feeding gives health, and health produces a heavy crop, that crop naturally should be stronger than another under poorer feed ; the inference here is supported by facts, and indeed it is also borne out by the length of fibre, in which, with one exception, the animals take the same standing.

Again, another practical question may be put,—is there any relation between strength and the number of spirals per inch ? Leaving out the lamb, and placing all the 4 and 5 spirals together, the mean of their strength is 108, or 11 above the average of the whole, which is 95. The seven spirals give a strength of 72 ; 12 gives 150 ; and 13-14 gives 69. Here then we have the largest number of spirals representing the least strength, and the least number of spirals showing somewhat over the average strength, but the second largest gives the greatest strength, and the second smallest a good deal under the average, so that with our present data, which has a mean of 8 spirals to 100 of strength we cannot definitely say that the fewer spirals the more strength, though such is the leaning of the figures.

A vigorous Cotswold ram lamb has also the average strength of wool, but is largely deficient in elasticity and the number of spirals per inch.

The two breeds of short woolled rams cannot fairly be compared, because of age, and while both are Downs, the Oxford is essentially a made up animal though admitted as a distinct breed, and with us has not yet proved itself as either good or poor particularly in any respect. For carcass the Oxford is not as much ahead as appearance indicates, even allowing he may reach out before another shear ; the wool is 44 per cent. more per carcass, is one third longer, is double in strength, but is less elastic by 16 per cent. An Oxford Down ewe, that had no lamb is not only about equal in weight of fleece but had much longer wool, and in other respects is not much behind the ram.

The average clip of 109 long wools, all thoroughbreds, was a little over nine pounds per head ; that of the short wools being 6⅓ pounds, all unwashed.

Sales of Live Stock.

Previous to October, 1876, we disposed of a number of young Berkshire pigs, at figures ranging from $15 to $30 each, but with this exception, no thorough bred stock has been sold privately. There are reasons for this : The question of the disposal of surplus live stock at this Institution is one that affects the Province. We cannot take the position of an ordinary farmer and say that we can sell to whom we choose, or act upon the motto —first come first served. As a provincial establishment, the aim should be to distribute

our overflowings without risk of even the suspicion to partiality by private bargains. Public sales alone will avoid this. But even a public sale may stand in the way of attaining the object desired,—that is, the distribution of animals of kinds better than what exist in many parts of the country; for it is plain, that speculators, not only in Canada, but the United States, will out-bid the most of farmers—for superior lots at least. It may then be said we ought to condition that all classes should be retained within the Dominion for a certain period, and thereafter are free to any market. Granting the suggestion, how are we to follow up the individual life and history of each animal throughout this immense country? It is simply impossible, and I am not even prepared to recommend what others may—that the sales be confined to the farmers of the Dominion.

In making our *début* then, as disposers of thorough-bred stock, it is well to establish something with the Government that has already been so liberal in promotiug the agriculture of the country.

Acting upon such opinion, we had our first annual sale on the 4th Oct. last, without any restriction or reservation whatsoever. A detailed pedigree catalogue was issued,—of the "Announcement" of which the following is an excerpt:—

"The Government of Ontario have pleasure in drawing attention to this the first sale of thorough-bred stock at the Experimental Farm. The question of the disposal of surplus live stock has been carefully considered, and, while most of the animals could have been well sold by private bargain, it was deemed advisable, in the interest of the general farmer, and with the view to a wider distribution, to make an annual public sale. The stock now offered are either directly imported, or mostly from recent importations. The pedigrees will show the stamp of each class, and although no high feeding of breeding animals is allowed, individual excellence will, as a whole, be found good without such practice. At the same time it must be remembered that the stock kept at the Institution is not so much for the purpose of breeding with the view to immediate profit as for purely educational purposes, and in avoiding the more commonplace types of thorough-breds there has been no desire to reach the blood that brings its thousands of dollars per head."

As it will be well to keep a record, even in a public report, of how our stock is being distributed, and the price realized, let the following concise table be examined:—

PUBLIC SALE OF LIVE STOCK ON 4TH OCT., 1877.

Class.	Animal Sold.	Dam.	Sire.	Purchaser.	Price.
					$ cts.
Short Horn	Cambridge Chief	Cambridge 10th	Cranberry Chief [2922]	J. B. Ridd	61 00
"	Senator	Lonan of Brant 5th	Baron Pawlett [2716], [16241]	Peter Mahan	60 00
"	Cambridge Duke	Cambridge 10th	3rd Duke of Springwood [3087]	David Beltrner	100 00
"	Manrico 2nd	Rosalie	Manrico (26805)	Joseph Thomson	84 00
Hereford	Duke of Argyle	Princess Mary 2nd	Duke of Connaught (4528)	J. W. Mackie	100 00
"	Duke of Manches'r	Heather Bell	" "	F. W. Stone	75 00
Cotswold	2 Shear Ram, Grey		Palmer	Thomas McRae	51 00
"	Shearling Ram		"	A. Neilson	44 00
"	"		Grey	James L. Squiers	25 00
"	"		"	Richard Rennelson	12 00
"	"		"	George Atkinson	16 00
"	"		"	James Laird	11 00
"	"		"	W. B. Mills	23 00
"	"		"	Richard Rennelson	13 00
Leicester	2 Shear Ram, Goodwood		Kirby	Thomas Waters	18 00
"	Shearling Ram		Goodwood	Robert Gowanlock	18 00
"	"		"	Robert Aikins	24 00
"	"		"	James Craig	38 00
"	"		"	George Cherry	25 00
"	"		"	Robert B. Fleming	24 00
"	"		"	J. B. Ridd	24 00
South Down	Aged Ram, Stone		Throckmorton	A. Nicol	26 00
"	Shearling Ram		Stone	R. Cromar	20 00

PUBLIC SALE OF LIFE STOCK ON THE 4TH OCT., 1877.—*Continued.*

Class.	Animal Sold.	Dam.	Sire.	Purchaser.	Price.
					$ cts.
South Down...	Shearling Ram.....	.....	Stone	F. Beck.....	10 00
" ...	"	.....	"	J. S. Armstrong....	10 00
" ...	"	.....	"	Richard Rennelson..	8 00
" ...	Lamb	....	"	W. B. Mills	12 00
" ...	"	.....	"	W. L. Gordon	8 00
" ...	"	.....	"	Richard Rennelson..	13 00
Berkshire Pigs	Boar Pig	Exquisite 2nd	Prizeman	John Pratt	13 00
" ...	"	Kate Hamilton....	"	George Cherry	12 00
" ...	"	"	"	Wright & Butterfield	12 00
" ...	"	Exquisite.....	"	James L. Squiers ..	11 00
" ...	"	"	"	J. S. Armstrong....	12 00
" ...	"	"	"	John Carter.....	7 00
" ...	Sow Pig	" 2nd.....	"	Robert Brown.....	19 00
" ...	"	"	"	J. B. Ridd	9 00
" ...	"	"	"	William Lackner ..	8 00
" ...	"	"	"	James L. Squiers ..	9 00
" ...	"	Kate Hamilton....	"	Robert Cromar	5 00
" ...	"	"	"	J. B. Ridd	8 00
" ...	"	"	"	R. Cromar	6 00
" ...	"	"	"	J. S. Armstrong....	7 00
" ...	"	"	"	" "	6 00
" ...	"	"	"	Joseph Snell	17 00
" ...	"	"	"	William Lackner ..	5 00
Prince Albert.	Boar Pig	Windsor Queen....	Windsor Chief.....	Richard Rennelson..	6 00
Windsor ..	"	Windsor Lass	"	John Hudson	6 00
" ...	Sow Pig	Windsor Queen....	"	Wright & Butterfield	8 00
" ...	"	"	"	John Hudson	8 00
" ...	"	"	"	A. Elliott	7 00
" ...	"	Windsor Lass ...	"	Wright & Butterfield	9 00
" ...	"	"	"	James Glennie	4 00
" ...	"	"	"	Thomas Waters	6 00
" ...	"	"	"	John Jackson	6 00
" ...	"	"	"	J. & R. Millar	8 00
Scotch Collies.	Bitch	Lassie	Bob.....	John Snell	16 00
" ...	"	"	"	J. R. Weir	10 00
" ...	"	"	"	W. B. Telfer	8 00
" ...	Dog	"	"	James Wright.....	8 00
" ...	"	"	"	Peter Arkell	6 00
" ...	"	"	"	John Hope	9 00
" ...	"	"	"	" "	10 00

The most of these prices are small; indeed with the exception of two bulls, seven sheep, and two pigs, all the animals were sold under market value—two or three being over value, however. The cause of this is unquestionably due to the severe money pressure of the times, in which breeders of equally good, and it may be, better stock, have both before and since our sale, had heavy experience under like circumstances. But in our case there can be no regret at this; if any need exist it should be that every lot did not go to farmers not professional breeders. It certainly is not desirable that any of our stock should be picked up by others than those farmers whose own need improving.

Altogether, the sale was 22 per cent. under our own valuation, and thus you will be pleased that one of the objects aimed at by the Government in establishing this farm is being realized,—the distribution of good thorough-bred, and not highly fed animals among the general farmers at prices not over market value. But 22 per cent. is not the opinion of everyone. During the time of advertising, when many breeders called to and from the Provincial Exhibition, as well as on direct visit, we were offered $300 for five shearling rams of Cotswolds and Leicesters; $60 for a South Down shearling ram that brought only $20; $25 each for some five Berkshire boars, and $25 each for several of the dog pups, so that had we risked our reputation by selling privately what was publicly advertised, some $600 more would have been the result. Need I add then, that it is matter of serious import not only to the Government but to my own status as manager of what may have to fight its way as a self-sustaining

farm, whether the power of private sales should not also be allowed in cases of special large profits at any time of the year.

Grant me this medium of saying to farmers that next year's sale will not only be more extensive, in greater variety of breeds of both sexes, but in all probability of higher individual excellence.

It is suggestive of more than one thing that animals purchased at this sale have since taken the following prizes :

1st. For yearling Short Horn bull at Puslinch.
1st. " " West Wellington.
1st. For Leicester ram at West Wellington.
1st. " shearling ram at Walkerton.
1st. For South Down shearling ram at Elora.
2nd. " " "
1st. For South Down ram lamb at "
2nd. For Berkshire boar pig at Walkerton.

And we hold a number of letters, of which the following is a sample, all anxious to purchase at once—all certain to come to next sale.

C———, October 29th, 1877.

" Dear Sir,—I am sorry I was not aware of the sale of stock at the Model Farm until it was past, especially so when I see the moderate prices obtained at the sale, prices which bring such stock within the means of the ordinary farmer like myself.

I write to ask if you have some animals left of pure Short Horn breed which you wish to sell, &c., &c.

C——— P———."

To Manager of Model Farm.

III.—THE GARDEN.

Active and substantial progress mark the work of this department, and altogether it is now time to advise the public of what we have on hand here as an educational and specially productive source.

Improvements.

These, according to present views, are about completed. The grading and gravelling of roads and walks have been largely overtaken, with trenching, levelling, and the removal of old fruit trees; the lawn, by special attention to repeated cuttings, is now an established bed of good grasses. An artistic flower plot, lined with cedar hedging, flanks the green house on the south, and was a show of itself last season. The north part of the pleasure grounds has been finished with shrubbery and a spruce hedge of 300 trees ; the new green house is near completion, and banking, levelling, and sod-laying is in progress in front of the new College buildings.

Kitchen Garden.

The rotation of cropping adopted is :—

1—Onions and Celery.
2—Potatoes.
3—Carrots.
4—Cabbage and Cauliflowers.
5—Peas and Beans.
6—Tomatoes and sundry creepers.

Heavy manuring is given to 1, 2, and 4, and comparatively little for the others.
In No. 1 Break were celery plants, onions, and potatoes of varieties.
In No. 2 Break were potatoes of kinds.
In No. 3 Break were carrots and parsnips.
In No. 4 Break were cabbages and cauliflowers.
In No. 5 Break were peas and beans.

In No. 6 Break were asparagus, cabbage, potatoes, melons, squashes, cucumbers, tomatoes, and early peas.

In the north garden were potato onions, radishes, strawberries, spinage, and Dutch sets.

In the west border, tobacco and deciduous trees; in the south, Indian corn and Mr McRae's tree seeds; and in the east were rhubarb, seedling asparagus, and herbs.

The produce of 1877 is thus estimated:—

132 bushels Potatoes	$ 82
120 " Onions	140
500 plants, Celery	25
50 bushels Parsnips	30
40 bushels Beet	20
600 bushels Carrots, off ½ acre	120
3000 Cabbage	150
500 Cauliflowers	25
20 bushels Peas	15
25 bushels Beans	27
Asparagus	10
Melons	10
Squashes	8
Cucumbers	10
Tomatoes	12
Radishes, Spinach, Tobacco, Indian Corn	22
Rhubarb and Herbs	34
	$750
Apples	20
	$770

FRUITS.

Apples.

Summer Varieties:

1. Red Strachan.
2. Early Strawberry.
3. Early Harvest.
4. Keswick Codlin.

Autumn Varieties:

5. Alexander.
6. Colvert.
7. Duchess of Oldenberg.
8. Fall Pippin.
9. Gravenstein.
10. Hawthornden.
11. Maiden's Blush.
12. St. Lawrence.
13. Fall Jenneting.
14. Sowell.
15. Indian Rareripe.

Winter Varieties:

16. Baldwin.
17. King of Tomkin County.
18. Fameuse, or Snow.
19. Hubbardson Nonsuch.
20. Holland Pippin.
21. Kentish Fillbasket.
22. Red Canada.
23. Rhode Island Greening.
24. Ribston Pippin.
25. Roxburgh Russet.
26. American Golden Russet.
27. Swayzie Pomme-Grise.
28. English Russet.
29. Swaar.
30. Spitzenburg Esopas.
31. Twenty Ounce.
32. Northern Spy.
33. Pomme-Grise.
34. Rambo.
35. Bomrossa.
36. Newton Pippin.

Pears.

1. Bartlett.
2. Brandywine.
3. Bloodgood.
4. Zyson.
5. Buffam.
6. Belle Lucrative.
7. Beurre Diel.
8. Beurre Giffard.
9. Beurre Clairgeau.
10. Duchesse d'Angouleme.

FRUITS.—*Continued.*

PEARS.—*Continued.*

11. Flemish Beauty.
12. Doyenné White.
13. Louise Bonne de Jersey.
14. Seekel.
15. Sheldon.
16. Clapp's Favourite.
17. Glout Moreeau.
18. Vicar of Wakefield.
19. Lawrence.
20. Beurre d'Anjou.

Plums:

1. Bradshaw.
2. Coe's Golden Drop.
3. Duane's Purple.
4. Imperial Gage.
5. Lombard.
6. Magnum Bonum Yellow.
7. McLaughlin.
8. Green Gage.
9. Washington.
10. Yellow Egg.

Cherries:

1. Black Heart.
2. Black Tartarian.
3. Napoleon Bigarcau.
4. Elton.
5. Belle de Choisy.
6. May Duke.
7. Reine Hortense.

Gooseberries:

Ten English varieties and Downing and Houghtons.

Seedling Currants:

White Grapes, Cherry, Red Victoria, Red Grapes, and Black Naples.

Raspberries:

Orange, Antwerp Red, and Philadelphia.

Strawberries:

Wilson's Albany, Triomphe de Gaud, Jucunda, and Monarch of the West.

Hardy Grapes:

1. Lindley.
2. Delaware.
3. Concord.
4. Rodgers No. 4.
5. " 19.
6. " 33.
7. " 36.
8. " 44.
9. Adirondac.
10. Arnold Conenpeca.
11. Iona.
12. Isabella.
13. Salen.
14. Logan.
15. Hamilton Black.
16. Rebecca.
17. Clinton.

Greenhouse and Bedding Plants.

Of these we have over 250 kinds and varieties of kinds, some rare and all good.

Trees and Shrubs.

Among the least common of what we are introducing and experimenting upon, may be named the Horsechestnut, Lindens, Oakleaved Mountain Ash, Weeping Birch, Purple Beech, Scotch Pine, Privet, Arborvitæ and Osang Orange.

I beg to acknowledge donations from the following gentlemen:

Of tree seeds from Thomas McRae, Esquire, Guelph.
Of California seed from the Rev. M. Torrance, Guelph.
Of Flower seeds from J. Forbes, Esquire, Guelph.
Of Dahlias from J. Davies, Esquire, Guelph.
Of Yucca from J. Pallaster, " "
And a very handsome collection of Bulbs, &c., from J. Simmons, Esquire, Toronto.

IV.—THE MECHANICAL DEPARTMENT.

The students' interest in this continues unabated, and their value of the labour, irrespective of education, may be thus summarised for the past season :

	Students Labour.	Other Values.
New Water Closet	$30 00	$30 50
Sundries in College	40 00	65 35
Coal House	9 00	16 55
Sundries on Farm	63 85	47 69
Flooring Stable	12 00	14 40
Brick Cottage repairs	8 00	38 54
Farm Buildings	11 65	7 00
Waggons, Machinery, Pumps, &c	22 15	6 00
Experimental Farm and Cellar	61 65	420 10
Addition to Carpenter's Shop	58 80	390 87
Sundry Jobbing in Mechanical Department	42 71	
8 Sheep Racks	42 00	54 00
8 Sheep Troughs	7 00	9 00
Four Steaming Boxes	50 09	55 00
Sheep Hurdles	20 00	25 00
Conveying Steam Pipes	15 26	25 00
Sundries for Live Stock Department	40 00	54 44
Fencing	53 00	1,025 80
	$588 81	2,327 24
		588 81
		$2,916 05

Buildings.

The building, now finished, in connection with the Experimental Plots, is in stone and wood in superior strength and workmanship ; size, 60 x 20. The underground cellar is arranged into bins on each side, with a passage in centre for horse and cart, for more careful handling of roots, &c., in place of "dumping" from the outside. One end of the barn is an office, seed room, and drying loft.

The addition to carpenter's shop is already of much value and fully occupied. The daily wants from others, to this department, cannot even be estimated in figures,—they are equal in variety and number to a small village.

Fencing.

We have erected during the past year :

Board, between fields 13-14, 14-15, 17-18, A B 17, west of 14 and east of C.
Straight Rail, between 3-4, 6-7, 7-8, and 15-16.
Dyke, east of field 17, not finished.
Wire, between 1-2.

The cost of board fencing has been :

Post holes	.13
Cedar posts	.22
Hemlock lumber	.62
Nails	.5
Workmanship	.18
	$1.20 per rod of 16½ feet ;

posts seven feet apart, three feet deep, and standing four feet eight inches above ground ; boards 12, 8, 8, 7, 7 inches respectively, from bottom to top, with a cap-board and a faced one to each post.

The cost of straight rail fencing has been :

Post holes	.9
Cedar posts	.15
Old rail posts	.14
Tie wire	.3
Workmanship	.10
	$ .51 per rod.

We have adopted this plan in order to use up the best of the old rails that are giving place to new fences: posts are planted 11 feet apart, at same depth and height as others, and on one side of each, not more than four inches distant, another post of old rail is driven into the ground. Old rails, cut to proper length, are now laid atop of each other between said posts until the desired height is reached, when the whole is kept in place by a tie of wire round top of posts. This is a good fence for cattle and sheep, but needs a rail nailed on top of posts for horses that are in the habit of reaching over and pressing against pannels.

The dry stone dyke is only in progress, but, when finished, to stand 4½ feet, with cope-stone, will cost $1.75 per rod. exclusive of carting stones. It will unquestionably be the most permanent and ultimately cheapest fence on the farm.

The wire is also only in progress, but its construction and cost may be noticed :

Post holes	.13
Cedar posts	.22
Top rail	.3
Wire	.42
Staples	.4
Workmanship	.15
	$ .99

As equi-sized as possible, and not over five inches in diameter at small end, the posts are pitted in the usual manner seven feet apart, with a straining post properly braced at distances required by the nature of the ground ; the wire of No. 8 galvanised, being fastened to posts with staples, and a sawn rail nailed on top in order to prevent jumping.

Hurdles.

These are only for sheep and young cattle, 4 feet in length, having 4 rails of pine or hemlock, with ends and top rail of oak, ringed with iron for driving, as well as being bolted at principal joints ; diagonals of pine nailed. When placed in line hurdles are held together by wooden pins through corresponding holes in post ends.

Gates.

We have several specimens of these—all wide, for reaping and mowing machines. The difficulty is to retain strength by lessening weight, and keeping down cost by use of little iron. Of six bars, 4.8 feet in height from ground, and one diagonal, all bolted, and having an iron spring sneck and heavy hinges, gates, according to weight and quality of materials, range in cost from $4 to $7 each. We pay great attention to what is usually considered of secondary importance—the fastening of gate posts : By sinking two heavy beams underground between and morticed to the gate-posts, we secure six-tenths of the permanency of those erections.

Steaming Apparatus.

This, as explained under Feeding of Live Stock, consists of :

One six-horse-power vertical boiler, &c	$377.37
Attached force pump	20.00
Piping and taps for 150 feet	95.00
Two steam vats, with piping and taps	90.00
	$572.37

OUR ROOTS AND CEREALS.

OUR ROOTS OF 1877.

Next to the improvements of our breeds of cattle and sheep, in view of more rapid and heavier growth of beef and mutton for exportation, is that of the best food for them. The position of Ontario with reference to the first, is happily an established fact, needing but a few years more to spread where as yet it is more difficult than even conveyance to distant lands; the position of the second is therefore at present of probably more national importance when we consider not only that at any time supplies of Indian Corn from the United States may be cut off, but that our alterations of climate with their attendant animal and vegetable pests in the season of growth are so uncertain as to demand the best energies of scientific and practical men. Are we prepared to compete with our neighbours in sending beef to Britain as good and cheap *upon food of our own growing*? Can we now do so with hay, straw and roots for six months in the year? It is well to have within our reach, as we generally do, in abundance—supplies of farinaceous subsidiaries, yet in my opinion it would be better to rely more on root crops. I have no desire to arrogate on any subject without the possession of repeated experiments to substantiate, nor have I gathered from my own experience here or from that of others in Canada, that many roots—say of turnips– with hay and straw, are as quick and cheap in beef raising as any other kinds of food, but with the long established fact, in my own experience and that of hundreds of others, that upon turnips and hay alone, much of the best beef in Britain is produced, there is certainly call for trial on the part of an institution established for such purposes with others. You will find elsewhere, therefore, a recommendation for a careful experiment on this point, and meantime the object in introducing it here has reference to the Turnip and Mangold, and their cultivation. How we managed to raise very fine crops of some 13 varieties of Swedes and 8 of Mangolds under many difficulties during the past season we have already seen; many other farmers in Canada do the same thing—the most do not to any extent; they say seasons are capricious, labour is costly, and there is as much nutrition in other things of less bulk and less trouble, and that are of more universal use or application.

We will examine somewhat in detail the relative value of our crops of Turnips and Mangolds, and first submit a table of figures made up in the field showing certain weighings and calculations that may guide us to future work.

OUR FIELD TURNIPS AND MANGOLDS OF 1877.

KIND.	Average weight per bulb.	Weight per cubic foot.	Cubic inches per lb.	Depth in soil.	TASTE.	Weight per acre: full crop.
Turnips—Swede.	Lbs.	Lbs.				Tons.
Drummond's Improved	4 2-10	71	24.3	¼	Acrid	36
Royal Norfolk	5 1-10	70.6	24.7	Fully ½	do	41
Carter's Imperial Hardy	4 5-10	69.1	24.9	⅓	Sweet	39
Marshall's Purple Top	3 5-10	67.4	25.6	⅓	do	30
East Lothian	3 3-10	65.7	26.3	Under ½	do	28
Hall's Westburgh	2 8-10	64.4	26.8	Fully ½	Very acrid	24
White Swede	4	63.2	27.3	½	Sweet	34
Watson's Purple Top	4 5-10	62.2	27.7	½	do	39
Laing's Purple Top	4 2-10	60.7	28.4	Fully ½	Medium	37
Skirving's Improved	3	59.8	28.8	¼	Sweet	26
Bangholm	3 9-10	59.8	28.8	Fully ½	Very acrid	33
Sutton's Champion	4 3-10	59.	29.1	Fully ½	Medium	37
Rennie's	4 9-10	57.2	30.2	⅔	do	42
Mean	4	63.8	27.1			34½
Aberdeen Yellow Bullock	2 5-10	47½	36.3	Fully ½	Sweet	21
Greystone	3 5-10	47¼	36.4	⅓	do	30

OUR ROOTS AND CEREALS.—*Continued.*

KIND.	Average weight per bulb.	Weight per cubic foot.	Cubic inches per lb.	Depth in soil.	TASTE.	Weight per acre: full crop.
Mangolds.	Lbs.	Lbs.				Tons.
Eastern Mammoth Long Red....	5 7-10	.....	.....	½	.....	49
Mammoth Long Red.....	5	.....	.....	Fully ⅓	.....	43
Elvathan Long Red	5 1-10	.....	.....	Fully ⅓	.....	44
Long Red	4 7-10	.....	.....	⅓	.....	40
Champion Yellow Globe	5	.....	.....	½	.....	43
Mammoth Yellow Globe	3 7-10	.....	.....	½	.....	32
Fisher Hobb's Orange Globe	3 7-10	.....	.....	Under ⅓	.....	32
Imperial Red Globe	3 1-10	.....	.....	Under ½	.....	27
	4½					35

Every product of the field is more or less valuable, nutritively, according to conditions of soil, climate, and cultivation, so with turnips and mangolds a clayey soil gives better in this respect than one of a lighter character, but a stiff soil means more labour, more difficulty in securing plants, and good cultivation. Both roots take much moisture, the mangolds more heat than the turnips, and a greater depth of available soil. It is well then for the farmer to choose that which suits his land best, having previously done everything in his power by drainage (if required), deep cultivation, and liberal manuring. If his land be heavy, the surface growing root must be cheaper, if as productive, and the deep-growing one is more productive on loam, if as valuable for food. The mangold needs more manure, moisture, and is less liable to insect attacks than the Swede turnips. Turnips are much easier harvested, and easier preserved than the mangold, but mangolds are about one-fourth more valuable as food.

The table requires little explanation. All the roots named were grown by us during the past season, on land very similar in character as a whole,—a good, fair loam, as to which and cultivation, see fields 10 and 13, under management thereof. The quantities per acre are a full crop, with drills 30 inches apart, and plants 12 inches between each other in the drill, and taking the average weight of our bulbs as a base of calculation. As nearly as possible, our actual produce was one-third less than those tabulated.

I am of opinion there is within every man's reach a way of ascertaining the relative value of all our farm crops, much more simple than any form of analysis yet in use. What that is, or may be, for each, I shall not at present indicate, but with reference to turnips it is worth enquiring whether there exists any plan by solidity, density, and weight or specific gravity, call it by any name you choose. Is it possible to make a standard as a fair guide, to give an idea of value?

I have, as you find in the accompanying table, given the weight per cubic foot, and cubic inches per lb. of all the turnips. Now, if cubic weight gives value, we have (1) Drummond's Improved; (2) The Royal Norfolk; (3) Carter's Imperial Hardy; (4) Marshall's Purple-top; (5) East Lothian; (6) Hall's Westburgh; (7) the White Swede; and (8) Watson's Purple-top, taking first rank for feeding purposes. That they are so in reality the chemist, or, what is better, actual experiments in feeding, alone can tell; and while keeping in view the important fact that these same plants may entirely change places if grown on the clays of Chatham, or the light loams of Nova Scotia, I shall hold there is the relationship indicated—subject, of course, to more clear evidence. But may I again hint that the same table shows other figures agreeing largely with what is advanced, namely, that most of the sweet-tasting roots are included in the above list, the other one so marked being second on the second class. May we then say that much acidity and the highest feeding properties do not go together?

Upon the basis of mangolds being one-fourth more valuable than Swede turnips, and 150 lbs. of the latter giving 1 lb. of flesh, any one can construct for himself a beef or mutton column by which will be impressed the serious national responsibility every farmer should live up to in the matter alone of simple root culture. A very proper public question would be,—

Could the Ontario Experimental Farm therefore grow 10,000 lbs. of beef with these twenty-six acres of turnips and nine acres of mangolds.

I have much pleasure in adding an analysis by our chemist, Professor Bryce, of six of the different swedes—four of the greatest and two of the least weight per cubic feet, according to the previous table. There seems to be little or no relation between this weight and any of the figures he records; indeed Rennie as the smallest cubic class, is nearly an average of the whole in solids; Carter however being high in all respects.

Turnips.	Drummond.	Carter.	Marshall.	Watson.	Rennie.	Laing.
Weight per cubic foot	71	69.1	67.4	62.2	57.2	60.7
Liquid	93.15	84.60	91.50	84.40	90.80	92.0
Solid	6.85	15.40	8.50	10.60	9.15	8.0
Organic matter	5.90	13.70	7.80	9.75	8.55	7.10
Mineral do	0.95	1.70	0.70	0.85	0.60	0.90

I shall close this chapter with an advice to farmers: Very large roots are more spongy, watery, and of less value, weight for weight, than small ones; very small roots are more acrid and more woody than very large ones; therefore grow the medium size, paying more attention to form and sweetness than large size. Condemn at home and at Exhibitions the increasing practice of lauding and prize giving to uncouth, rubbishy, overfed sponges, called turnips and mangolds, and buy no seed without a guarantee.

OUR CEREALS OF 1877.

Besides the usual description of the wheat, oats, and barley, grown in the fields and experimental plots, I deem it advisable to give a more full account of each variety so as to embrace the character of the straw whether strong or weak, long or short; of the head whether long or short, compact or open; of the grain with reference to size, plumpness, colour and skin; of growth, whether late or early, hardy or tender; and of produce per acre so far as can be done accurately. Of course in order to follow intelligently and make comparisons with other places, the peculiarities of this district of country should be taken into consideration, not only as regards rainfall, exposure and soils, but the various diseases, if any, that have characterized the season of growth, should be had to bear upon the whole subject. There is certainly an advantage in having such a statement at hand, as all the plants were grown under very similar conditions, upon a soil of average character and fertility, and under similar management.

A like account of the 60 kinds of wheat sown this fall should be of some interest in next annual report.

OUR CEREALS OF 1877.

	KIND.	Straw.		Head.		Grain.			Produce.		Remarks.
		Strength.	Length.	Length.	Sets of Florets.	Size.	Plumpness.	Colour.	Bushels per Acre.	Weight per Bushel.	
	WHEAT.										
Winter, smooth-headed.	Essex Red	VS	L	2½	11	..	..	..	..	..	These are given as standards for Head and Straw.
	Lennie's White	..	..	3½	11	..	..	..	..	..	
	Silver Chaff	W	..	3	7	M	P	M	56	60	
	Clawson or Seneca	M	M	3½	8	L	P	M	54	61	
	Gold Medal	..	..	2¾	6	L	P	M	47	63	
	Scott	W	..	3	7	VS	M	B	52	61	
	Soules	M	..	2½	7	M	M	M	44	61	

OUR CEREALS OF 1877.—*Continued.*

	KIND.	Straw.		Head.		Grain.			Produce.		Remarks.
		Strength.	Length.	Length.	Sets of Florets.	Size.	Plumpness.	Colour.	Bushels per Acre.	Weight per Bushels.	
	WHEAT.—*Con.*										
Spring, smooth-headed.	Farmer's Friend	S	M	4	9	L	M	M			
	Mammoth Spring	.....	.....	4½	9	M	P	D			
	Hard Time	.....	.....	4	8	VS	UP	M			
	Sonora	W	M	3½	8	M	M	M			
	Cook's	W	S	3½	8	M	M	D			
	Provence	S	S	4	9	S	M	M			
	Prince Edward Isl'd	W	M	3	8	M	P	B			
	Post McDonnell	.....	.....	3½	7	M	P	DB			
	Click Club	M	.....	1¼	8	S	UP	B			
	Mammoth White	.....	.....	4	7	M	P	D			
	Spring	.....	S	3	7	VS	D	M			
	Purple Straw	S	M	4	7	S	S	M			
	Tasmania	W	S	3	7	S	M	M			
	Red Chaff	M	L	3½	8	M	UP	D			
	White Tuscan	.....	M	4	8	VL	P	B			
	Brooks	VW	S	3	5	M	P	B			
	Odessa	.....	L	3	7	VS	P	M	10		
	Reap Crown	M	L	3½	8	M	UP	M			
	Fife	.....	M	3	8	S	P	M	26		
	Golden Drop	M	L	2½	8	M	P	B	20		
	Manitoba	VW	M	3	5	S	M	B	13		
	Lost Nation	M	.....	3½	7	M	P	B	25		
	Rio Grande	.....	L	3	7	M	P	B	15		
	Swamp	.....	M	3	6	S	P	B	14	57	
	Red River	W	.....	3	6	S	P	B			
	Danzic	.....	S	2¾	8	M	P	B			
Spring, bearded.	Red River	W	M	3	7	M	P	B	12		
	McCarling	M	L	4	8	M	M	B	32		
	Red Feru	S	.....	5	9	S	M	B			
	Imperial	M	.....	2½	6	M	P	B			
	Russian	.....	.....	2	7	L	P	B			
	Egyptian	.....	M	3	11	M	M	B	20	.....	Branched head.
	Russian	M	L	3¼	7	M	P	B			
	Blue Stem	S	M	4	7	M	UP	B			
	Red River	.....	.....	4	8	L	M	B			
	China	M	.....	4	8	L	M	D			
	Christie No. 1	W	.....	2½	6	S	M	B			
	Do " 2	S	.....	2¾	9	VS	P	VB			
	Baltic	M	.....	3½	7	L	M	M			
	Black Sea	W	S	2	5	S	M	M			
	Farrow	M	M	3¼	7	M	M	B			
	French	.....	.....	2¾	9	M	UP	D			
	Ivory White	S	S	3	6	M	M	M			
	Providence	W	.....	3	7	....	....	....	.....	.....	Very poor.
	RussianGoldenStraw	S	M	4½	8	VS	M	M			
	Arnautka	M	M	2½	8	S	M	B			
	Fort Pitt	.....	.....	4	8	S	M	M			
	Ocean	.....	S	3½	7	S	M	M			
	Spelt	VW	S	2	.....	S	....	D	.....	.....	German wheat.
	OATS:										
Branched White.	Somerset	S	M	7	.....	M	M	M			
	Russian	M	L	8	.....	S	P	B			
	White	W	M	7	.....	....	....	....			
	White Straw	.....	S	7½	.....	....	....	....			
	White Blade	VS	L	8	.....	M	P	B			
	Iowa	.....	.....	12	.....	....	....	....			
	Poland	M	M	11	.....	M	M	D			
	Long Fellow	.....	L	6	.....	....	....	....	35		

OUR CEREALS OF 1877.—*Continued.*

	KIND.	Straw.		Head.		Grain.			Produce.		Remarks.
		Strength.	Length.	Length.	Sets of Florets.	Size.	Plumpness.	Colour.	Bushels per Acre.	Weight per Bushel.	
	Oats.—*Con.*										
Branched White.	Hopetown	.....	L	7	.....	.....	.....	.....	45		
	Australian	W	.....	8	.....	.....	.....	.....	57		
	Barley (Birlie?)	M	S	7	.....	M	M	B			
	Emporium	.....	L	7	.....	.....	.....	.....	55		
	Potato	.....	.....	7	.....	.....	.....	.....	30		
	Australian White	.....	VS	6	.....	.....	.....	.....			
	Sideway	.....	L	7	.....	.....	.....	.....			
	Chichago White	.....	M	8	.....	S	UP	D	.....	.....	Very poor.
	Early Yellow	W	S	6	.....	.....	M	M			
	White Sparable	M	M	7	.....	S	M	M	.....	.....	Yellow grain.
	Brazilian	W	.....	7	.....	.....	.....	.....			
	Colorado	M	.....	8	.....	S	M	.....	.....	.....	Slightly awny.
	California	VW	.....	5	.....	.....	.....	.....			
	Surprise	S	.....	8	.....	S	P	B			
Branched Black.	Black Brown	M	S	7	.....	.....	.....	B	.....	.....	Brown black grain.
	German	S	M	7	.....	.....	.....	.....			

Index to Cereal Table.

S.....Strong, Short, Small.
VS.....Very Strong, Short, Small.
P.....Plump.
UP.....Not Plump.
W.....Weak.
VW.....Very Weak.
M.....Medium.
L.....Long or Large.
B.....Bright.
D.....Dull.

One Centennial variety of Oats, without name, straw very short, very weak, 4½ inch, branched head, grain brown and medium size, was sown May 8th, headed July 1st, and harvested July 23rd.

	KIND.	Straw.		Head.	Grain.			Produce.		Remarks.
		Strength.	Length.	Length.	Size.	Plumpness.	Colour.	Bushels per acre.	Weight per bushel.	
Branched Black.	Black Norway	S	M	8	S	P	B			
	Sparable	.....	L	9	.....	.....	.....			
	New Brunswick	W	M	8	.....	.....	.....	20		
	Bulman's Black	V W	.....	8	S	U P	D	.....	.....	Irregular sample.
	Bunn	W	V	4	.....	.....	.....	.....	.....	Very brown straw.
Side White.	Side Oats	W	M	6	M	M	M			
	New Zealand	M	.....	9	M	P	B	41	.....	Awny.

OUR CEREALS OF 1877.—*Continued.*

	KIND.	Straw.		Head.	Grain.			Produce.		REMARKS.
		Strength.	Length.	Length.	Size.	Plumpness.	Colour.	Bushels per acre.	Weight per bushel.	
Side Black.	Short Oats	V S	S	6						
	Black Poland	S	L	7	M	P	B			
	Black Tartarian	S	L	7	M	....	B	35	.....	Canadian.
	Black Tartarian	V S	L	8	....	....	B	.....	.....	Scotch.
Six Rowed.	BARLEY.									
	Six Rowed	M	$2\frac{1}{2}$	3	M	M	B	39	.....	Length of straw in feet.
Four Rowed.	Thanet	S	$2\frac{1}{2}$	3	S	M	B			
	Red River.....	S	$2\frac{3}{4}$	3	S	U P	B	.....	.....	Probably same as Thanet.
Two Rowed.	Proestier	M	$2\frac{1}{4}$	4	L	P	M			
	Long Two.....	.....	$2\frac{1}{2}$	4	....	....	....			
	French	.....	2	4	M	M	D			
	Two Rowed	W	3	$4\frac{1}{2}$	....	....	....	28		
	Brewer's Delight.....	M	$2\frac{1}{4}$	$3\frac{1}{2}$	M	U P	M			
	Russian	W	$2\frac{1}{4}$	3	....	....	....			
	Chevalier	S	$2\frac{1}{4}$	5	M	P	B			

In the tabulation of these one hundred cereals my object is to afford farmers an opportunity of judging of characteristics of those that have already been grown here, or so excite interest that an examination of plants and grain will be the result on their part. Of course such a table is incomplete without the milling properties and a fuller produce column of each kind. All letters and figures are intelligible enough with, perhaps, the exception of "*Sets of Florets on each side*" of head for wheat, and as this is the most important guide to produce of individual plants, permit me to explain that one floret or *bunch* of grain that is attached to the rachis or stalk of the head, usually contains three berries, so that, taking the Essex Red for example, we should find 11x3=33 = 66 berries for *both* sides, or the whole head; while Brooks would be 5x3=15=30 grains per head. Following the Silver Chaff throughout, we ascertain that it had long, weak straw, the length of the head being 3 inches, with 7 sets of florets, the grains being of medium size, plump, and of medium brightness, and that it produced 56 bushels per acre, with an average weight of 60 lbs. per bushel.

VII.—EXPERIMENTS.

EXPERIMENTS IN FEEDING.

Sheep.

On the 1st March we selected ten thorough-bred ram lambs, then twelve months old, eight being Leicester and two Cotswold. They were shorn on the same day, divided as equally as the eye could tell, four and one of Leicester and Cotswold respectively, and put, after weighing, into warm pens adjoining each other, the temperature of which could be regulated.

Note first the almost equal weight of the pens, 730 and 722, and in respect to previous treatment, dispositions, and other circumstances preliminary in such cases, I beg to refer to the rules laid down in last year's report, to all which due attention was paid. Feeding took place at 7, 11.30, and 5.30 daily ; weighings were weekly, and five weeks adopted as the limit of change to differently prepared food.

The experiment consisted in the use of a mixture of cut hay, whole peas, bran, and cut Swede turnips—in the one case raw, and in the other by steaming in vats erected for the purpose (see Mechanical Department). Accurate notes of quantities of food and the cost thereof were kept according to the following table :—

EXPERIMENT IN FEEDING SHEEP.

Pen 1.—Five Sheep on Raw Food.

Date.	Weighings lbs.	Result in lbs.		Cut Hay.	Whole Peas.	Bran.	Cut Turnips.	Value of Food.	Temperature. Max. during day.	Temperature. Lowest at night.
								$ c.		
March 1	730									
do 8	723½	− 6½		37	59	20	272	1 18	19°	− 3°
do 15	749½	+ 26		27	54	20	190	1 00	18	−11
do 22	767	+ 11½		50	55	18	273	1 19	14	− 9
do 29	795	+ 34		40	50	22	280	1 14	29	15
April 5	810	+ 15		50	45	23	280	1 14	36	24
		+ 80	Totals	204	263	104	1295			
			Costing $	0 81	2 77	0 47	1 60	5 65		

Pen 2.—Five Sheep on Steamed Food.

March 1	722									
do 8	730½	+ 8½		78	57	20	202	1 25	19	− 3
do 15	778½	+ 48		22	54½	20	249	1 29	18	−11
do 22	793	+ 14½		88	50½	21	282	1 33	14	− 9
do 29	803½	+ 10½		96	50	20	343	1 54	29	15
April 5	827	+ 23½		85	51	23	273	1 30	36	24
		+105	Totals	419	263	104	1349			
			Costing $	1 72	2 71	0 48	1 80	6 71		

Pen 1.—As above, on Steamed Food.

April 5	810									
do 12	836	+ 26		72	61	20	275	1 36	44	29
do 19	860	+ 21		84	61	20	317	1 49	46	29
do 26	886	+ 26		83	60	20	291	1 45	49	31
May 3	880	− 6		71	60	20	316	1 43	42	28
do 10	894	+ 14		80	59	20	268	1 40	48	30
		+ 84	Totals	390	301	100	1467			
			Costing $	1 56	3 16	0 45	1 95	7 13		

Pen 2.—As above, on Raw Food.

April 5	827									
do 12	815½	− 11½		35	58	20	210	1 15	44	29
do 19	842	+ 26½		38	62	21	240	1 17	46	29
do 26	840	− 2		48	61	19	240	1 26	49	31
May 3	864	+ 24		39	61	22	322	1 34	42	28
do 10	884	+ 20		46	59	18	410	1 14	48	30
		+ 57	Totals	206	301	100	1452			
			Costing $	0 82	3 16	0 45	1 93	6 36		

Pen 1 on raw food, started with a weight of 730 lbs., and during the first seven days lost flesh to the extent of 6½ lbs., a circumstance owing no doubt to the sudden change of treatment and food—not so much, if any, to the weather, for the following week, with a much lower temperature—the lowest of any during the period of ten weeks—there appeared an increase of no less than 26 lbs., on 32 per cent., less hay and turnips. Indeed large consumption of food seems to have had less effect in adding to weight of flesh than other conditions, as, observe how on the third week—temperature being about equal—over 62 per cent. more hay and turnips give 109 per cent. less increase than that of its predecessor. Succeeding this, however, occurs the largest addition in the whole trial of raw food—wanting only one lb. to make as much as one lb. of flesh per head per day; true, the weather was then milder, but so is the fifth week, during which the increase is 25 per cent. below the average. Let us follow the change of the same pen for another five weeks:—Removed from raw to steamed food, the animals give an increase of 10 oz. per head per day for three weeks continuously, during which not only the quantities of food but the temperatures were very uniform. You will notice the somewhat unusual evenness of temperature from 5th April to 10th May, and upon this, with the regular consumption of food, I am unable to account for the sudden falling off during the fourth week—such a falling off as implies some derangement somewhere. We say it was not in climate, nor in larger or smaller quantities of any kind of food, and it could not be any mouth disease, as the materials were consumed, nor could it be in the stomach, for many examinations every day told of no need of medicine. It is generally understood that young animals void less excrement, and come and go much more irregularly than aged ones, but here again we may be at fault without reliable experiments.

Pen 2 began with steamed food, weighed 722 lbs. on entry, added a little during the first week, and on the second, one of the most severe in weather, and one in which all the sorts of food were, in quantity, under an average of the period, each sheep laid on more than 1⅓ lbs. per day, and so on in lesser proportions for the remaining three weeks, but always adding, never going back. The same animals, when changed to raw food, however, at once fell off to a large extent, but recovering the shock, and getting a considerably larger proportion of peas, they made ¾ lb. each per day. Instead, however, of keeping up more or less to this recovery, as did pen 1 in its first stage, we have to record a break in the shape of minus 2, an isolated and unaccountable fact to be placed alongside the fourth week of the second stage of pen 1, as already noted.

As regards results and costs, without reference to attendance, we have the following figures:—

On *raw* food, one ram lamb thirteen months old, newly shorn, comfortably housed, and having a mean temperature of 25° outside, will eat daily 15 lbs. of cut Swede turnip, 1⅕ lb. of bran, 3⅕ lbs. of whole peas, and 2¼ lbs. of cut hay, adding 6oz. to weight, at an expense of 3½ cents, or say 9⅓ cents per lb.

On *steamed* food, one ram lamb thirteen months old, newly shorn, comfortably housed, and having a mean temperature of 25° outside, will eat daily 16 lbs. of turnips, 1⅕ lb. of bran, 3⅕ lbs. of whole peas, and 4½ lbs. of cut hay, adding 8½oz. to weight, at an expense of four cents, or say eight cents per lb.

This experiment then points meantime to five things:—

1st—That sudden change of food, raw or cooked, affects young sheep deleteriously.

2nd—That severe cold temperature has little or no effect on young shorn sheep, well housed, and regularly fed on a variety of good plentiful food, raw or cooked.

3rd—That large consumption of food, raw or cooked, does not always imply a large, or any, addition to weight of mutton.

4th—That sudden fluctuations in the life of young sheep, so managed, seem to be unaccountable, both with raw and cooked food.

5th—That, adding the expense of steaming there is practically no difference in the cost of production, by this experiment.

Memo.—Hay, $8 per ton of 2,000 lbs; peas, 63 cents per bushel of 60 lbs.; bran, $9 per ton; turnips, 8 cents per bushel of 60 lbs.

Experiment in Cattle Feeding.

As a trial, preliminary, for the purpose of a lesson, and in order to gather some facts for a more extended experiment, we placed four cattle under special feeding for the period of ten

weeks, beginning 20th March and ending 29th May last. Of our own breeding from grade cows, by a thorough-bred bull, these steers were selected, mated, and managed under conditions similar to the sheep. Archie was 27, Sam 21, Jim 23, and Bob 24 months old when thus taken in hand. I prefer to keep the names of the animals for the sake of easier reference to the school and others, as they are still on hand for Easter. All were previously fed on steamed hay, straw, and turnips.

Examine first the accompanying table, in which it will appear that Archie and Sam, going in with a joint weight of 2,346 lbs., came out in six weeks with an addition of 144lbs. under raw food, or a mean of $1\frac{5}{6}$lb. per head per day; transferred to steamed food they made 76lbs. in four weeks, or say $1\frac{1}{3}$lb. per head per day. Jim and Bob, as mates, with a joint entry of 2,278 lbs., under steamed food; show an increase of 92 lbs. in six weeks, which is about $1\frac{1}{10}$lb. per head per day. Changed to raw food for four weeks, they barely keep their own. Uniting the individual results under each heading, we find that cooking is 18 per cent. better than raw, almost the same quantities of food being used—less actually in the former case; but further than stating that fodder means a mixture of cut hay, straw and turnips, and that meal is crushed peas and corn. I do not purpose at this time entering upon any more comparative notes for reasons already stated.

PRELIMINARY EXPERIMENT IN CATTLE FEEDING.

Date.	Raw Food.				Steamed Food.			
——	Archie.	Sam.	Jim.	Bob.	Archie.	Sam.	Jim.	Bob.
March 20	1268	1078	.....	.....	.....	.....	1179	1098
May 1	1344	1146	1212	1148	1344	1146	1212	1148
" 29	(76)	(68)	1198	1160	1392	1174	(42)	(50)
			-(14)	(12)	(48)	(28)		
	+141		-2		+76		+92	
	+142				+168			
Fodder ...(a)	2328		745		808		2190	
Meal ...(b)	672½		456		456		665½	
Bran ...(c)	299½		180		180		299½	
	(a) 3073				(a) 2998			
Total.....	(b) 1128½				(b) 1121½			
	(c) 479½				(c) 479½			

Revise, therefore, by observing five things:—

1st—That much judgment among so few animals is necessary to secure equal feeding properties,—Archie and Sam under steam (48) and (28), showing the only material difference, the others making up and falling off almost alike in the individual mating.

2nd—That a change from steamed food of ordinary nutritive properties, to raw food, richer and in variety, is very good—Archie and Sam.

3rd—That rich food steamed and given to the same animals, has no appreciable advantage for four weeks at least.

4th—That animals continued on steamed food of a richer kind, is not so good as our second observation—Jim and Bob.

5th—That a change from steaming to raw is a decided case of no progress for one month.

EXPERIMENTAL FIELD PLOTS.

With so much explanation in the introduction of this last year, it is simply unnecessary to rehearse the objects, plan, and mode of management adopted, in addition to much minutiæ in all possible forms, in work requiring great care and forethought.

It will suffice to do two things this year,—tabulate results and abstract the apparent or real conclusions in each class of experiments, with the following for general reference :—

Plot 1 Turnips, Superphosphate.
2 " Bone dust.
3 " Nitrate of Soda.
4 Potatoes, diff. size sets.
5 Mangolds, with and without Liquid Manure.
6 Wheat, with and without Nitrate of Soda.
7 Barley, without manure.
Turnips, with and without Lime, &c.
8 Carrots, " "
9 Mangolds, Fall and Spring manuring.
10 Wheat, no manure.
11 " "
12 " "
13 Rye-grass, Nitrate of Soda.
14 " Gypsum.
15 Barley and Millet, Nitrate of Soda and Superphosphate.
16 Wheat, F. Y. manure.
Barley, "
17 Wheat, "
18 Lucerne, diff. manures.
19 Clovers, diff. manures.
20 Mangolds and Sugar Beet, with Gypsum and Bone-dust, and Superphosphate and Salt.
Plot 21 Forty-one kinds of Wheat, Oats, and Barley.
22 Wheat, Superphosphate, Lime, Liquid Manure.
23 Oats, no manure
24 Oats, Gypsum, Leached Ashes.
25 Indian Corn, Superphosphate, Gypsum, and Nitrate of Soda.
26 Wheat, Farm-yard manure.
27 Oats and Barley, Bone-dust, Salt.
28 Wheat, on Summer fallow.
29 Summer Fallow.
30 Turnips, Farm-yard manure, Gypsum, and Nitrate of Soda.
31 Peas, Lime, Gypsum.
32 Same as Plot 30.
33 Wheat, Farm-yard manure.
34 " "
35 " Bone-dust.
36 " No manure.
37 " Cultivated.
38 " Gypsum, Bone-dust.
39 Potatoes, Hills *versus* Drilling.
40 Clovers and Grasses.

OUR EXPERIMENTAL PLOT CEREALS OF 1877.

KIND.	Plot.	Crop and Treatment of 1876.	Seeding. Date.	Seeding. Rate per acre.	Date of Braiding.	Date of Heading.	Date of Reaping.	Manure. Kind.	Manure. Application per acre.	Produce per acre. Grain.	Produce per acre. Straw.	Produce per acre. Chaff.	Weight per bushel.	Remarks.
			1876.	lbs.						B.	lbs.	lbs.	lbs.	
Wheat—*Winter.*														
Silver chaff	16	Indian Corn, without manure	Sept. 23	150	Oct. 6..	June 19	July 25	Farm-yard manure	30 loads	56.52	4350	1087	60	
Do	28	Summer Fallow	"	125	Sept. 29	" 21	" 21	.....	.....	41.15	2450	675	59½	
Senaca (Clawson)	17	Indian Corn, no manure	"	120	Oct. 6..	" 14	" 24	Farm-yard manure	30 loads	54.00	2905	860	61	
Do do	28	Summer Fallow	"	125	Sept. 29	" 14	" 19	.....	.....	41.40	2050	750	60	
Scott	26	Peas, without manure	"	120	Oct. 5..	" 14	" 19	Farm-yard manure	30 loads	51.51	2705	655	61	
Do	28	Summer Fallow	"	125	Sept. 29	" 15	" 24	.....	.....	40.50	2275	626	60	
Do	26	Peas, without manure	"	120	Oct. 5..	" 23	" 25	Farm-yard manure	30 loads	42.33	.....	.....	60	Cut over on 25th
Gold Medal	33	Oats, no manure	Sept. 21	120	Sept. 30	" 15	" 19	do	do	47.30	2490	890	63	May, when one
do	28	Summer Fallow	Sept. 23	125	Sept. 29	" 18	" 24	.....	.....	35.25	2050	775	61	foot high.
Soule	34	Oats, no manure	Sept. 22	120	Oct. 2..	" 17	" 20	Farm-yard manure	30 loads	44.00	2410	910	61	
do	28	Summer Fallow	Sept. 23	125	Sept. 29	" 18	" 24	.....	.....	35.12	2225	1000		
Wheat—*Spring.*														
Fife	10	Carrots, farm-yard manure and superphosphate	May 1..	80	May 14	July 7..	Aug. 7	Without manure	.....	26.40	2050			
Mr. Carling	....	Carrots, farm-yard manure and superphosphate	" ..	120	"	July 5..	" 6	do	.....	31.56	3950			
Fife	11	Ditto and subsoiling	" ..	80	"	" ..	" 6	do	.....	25.50	2266			
Mr. Carling	....	Ditto and subsoiling	" ..	120	"	" ..	" 6	do	.....	33.20	2600			
Fife	12	Ditto and deep ploughing	" ..	80	"	" ..	" 6	do	.....	22 55	1925			
Mr. Carling	....	Ditto and deep ploughing	" ..	120	"	" ..	" 6	do	.....	26.24	2316			
Russian Baltic	22	Potatoes, farm yard manure	May 4..	100	May 15	July 8..	" 7	Superphosphate	500 lbs.	25.00	2000			
Do	....	Potatoes, farm-yard manure	" ..	100	"	" ..	" 7	Lime and liquid manure	50 b. and 600 lbs.	17.20	1660			
Swamp Russian	38	Turnips, no manure	" ..	100	"	July 12	" 20	Gypsum and bone dust	4 B. 16 "	10.30	1360	.....	57	
Farrow	37	Turnips, bone dust	May 1..	50	"	July 10	" 30	Cultivated by hand hoeing	.....	13.00	1240	.....	54	Drilled 18 ins. apart.
Do	....	Turnips, bone dust	" ..	100	"	"	" 30	Uncultivated	.....	7.00	780	.....	48	Ditto 9 ins.

OUR EXPERIMENTAL PLOT CEREALS OF 1877.—*Continued.*

KIND.	Plot.	Crop and Treatment of 1876.	Seeding.		Date of			Manure.		Produce per acre.			Weight per bushel.	Remarks.
			Date.	Rate per acre.	Braiding.	Heading.	Reaping.	Kind.	Application per acre.	Grain.	Straw.	Chaff.		
				lbs.						B.	lbs.	lbs.	lbs.	
Oats.														
Australian	23	Potatoes, farm-yard manure..	May 4..	82	May 16	July 9..	Aug. 3	Farm-yard manure	25 loads	57.12	2180			
New Zealand	24	Potatoes, farm-yard manure..	" ..	82	"	July 10	" 3	Gypsum and leached ashes	100 lbs. 10 B.	41.06	2670			
Barley.														
Six rowed	15	Indian Corn, superphosphate and farm-yard manure	May 4..	110	May 16	June 26	July 25	Nitrate of soda	100 lbs.	38.09	1766	.. ...	53	
Do	....	Indian Corn, superphosphate and farm-yard manure	" ..	110	"	"	" 25	Superphosphate	500 lbs.	40.13	1950	.....	57	
Two rowed	16	Indian Corn, no manure	" ..	110	"	July 9..	Aug. 3	Salt	400 lbs.	28.06	.....	.....	47	

OUR EXPERIMENAL PLOT ROOTS OF 1877.

KIND.	Plot.	Previous Crop and treatment.	Manure, 1877, per acre.	Bushels per acre.	Remarks.
TURNIPS.—*Swede.*					
Rennie	1	Wheat, without manure.	Superphosphate, 500 lbs.	620	Damaged by grub.
Skirving	1	"	" "	467	
Royal Norfolk	2	"	Bone Dust, 16 B	875	
Sutton's Champion	2	"	"	880	
Bruce's East Lothian	2	"	Nitride of Soda, 150 lbs.	1042	
Hall's Westburgh	2	"	" "	889	
MANGOLDS.					
Eastern Mammoth	9	Wheat, subsoiling, no manure.	F. Y. Manure, 20 loads in fall of 1876.	721	See notes.
Yellow Globe	9	"	" "	721	
Eastern Mammoth	9	"	" in spring	615	
Yellow Globe	9	"	" "	587	
Mammoth Long Red	20	Buckwheat without manure.	Gypsum, 4 B, and	707	
White Sugar Beet	20		Bone Dust, 16 B	478	
Mammoth Long Red	20	"	Superphosphate, 350 lbs.	857	
White Sugar Beet	20	"	And salt, 15 B	755	
CARROTS.					
Altringham	8	Turnips, F. Y. manure.	F. Y. Manure, 20 loads, and Lime 200 B	248	
White Belgian	8	"	" "	514	
Altringham	8	" and Lime	without Lime	322	
White Belgian	8	"	" "	500	

FIELD PLOT EXPERIMENTAL CONCLUSIONS.

1.—That a heavy application of farm-yard manure with five kinds of Fall Wheat, upon land previously cropped with Indian Corn without manure, gives 12 bushels more grain, 762 lbs. more straw, and 115 lbs. more chaff per acre than unmanured land previously summer fallowed.

2.—That five Fall Wheats with farm-yard manure give a mean of 50 bushels 51 lbs. grain, 2,972 lbs. straw, and 880 lbs. chaff per acre.

3.—That the Silver Chaff had 7 bushels 22 lbs. more grain, 1,648 lbs. more straw, and 258lbs. more chaff per acre than the mean of other four kinds.

4.—That wheat, of kinds, vary much less in production on unmanured land, than on that with farm-yard dung,—ranging from 35.12 to 40.50 and from 44.00 to 56.52 respectively.

5.—That Fall Wheat on good loam, with a south-eastern exposure and in a mean temperature, 70°5′ by day, and 48°8′ by night, takes 70 days to mature, calculating from the date of Spring Wheat brairding.

6.—That Fall Wheat, cut close to the ground and removed, when coming in head at one foot in height, will recover to such an extent as to lose only 18 per cent. in comparison with its own kind, and is six days later in maturing.

7.—That sub-soiling and deep ploughing the previous season on well manured land under root crop, have no material effect on a following crop of Spring Wheat.

8.—That the hoe cultivation of Spring Wheat, *with half the seed*, is 186 per cent. better for grain, 160 per cent. better for straw, and 112 per cent. better in weight per bushel.

9.—That an application of 100 lbs. of Nitrate of Soda to Barley, on land previously under Indian Corn manured with farm-yard dung, and 350 lbs. Superphosphate, is only 5 per cent. less in grain and 9 per cent. less in straw than 500 lbs. of Superphosphate similarly applied.

10.—That Spring Wheat takes 14 days longer to mature than the Fall varieties.

11.—That on the basis of a variety of Swede turnips producing an average of 767 bushels per acre with farm-yard manure;—Nitrate of Soda gives 198 bushels more, Bone dust 91 bushels more, and Superphosphate 223 bushels less per acre.

12.—That the manuring and ploughing of land in Autumn in preparation for mangold cultivation, is 20 per cent. better in amount of produce, than the same work in Spring.

13.—That Superphosphate and Salt, to long red mangolds, is 17 per cent. better, and to White Sugar Beet is 60 per cent. better than Gypsum and Bone-dust together as manure.

14.—That under applications of farm-yard manure and Lime, the White Belgian Carrot is 43 per cent. better than the Altringham similarly managed.

15.—That top-dressing clovers with (1) Liquid Manure (Farm Yard), (2) Nitrate of Soda, (3) Soot, and (4) Bone-dust, gave respectively: $6\frac{9}{10}$ tons; $6\frac{4}{10}$, $3\frac{8}{10}$, and $6\frac{9}{10}$ tons, —quantities of manure being 150 lbs. Nitrate of Soda; 20 Bushels Soot, and 16 Bushels of Bone-dust.

16.—That top-dressing Ryegrass (a mixture) with 100 lbs. Nitrate of Soda, in the one case, and 200 lbs. of Gypsum in the other, resulted in 2,450 and 2,050 lbs. per acre respectively, or one-fifth of a ton in favour of Nitrate of Soda.

17.—That the cultivation of Lucerne (*Medicago Sativa*) in drills, with frequent use of the horse hoe, and manuring with farm-yard liquid in the one case, and Nitrate of Soda in the other, gives 1,800 lbs. per acre in favour of the liquid; that cutting four times during the season results in a produce of 6 tons and 812lbs. per acre, and that the fifth growth was equal to an average of the others.

18.—That our grass plot gave the following order of merit in regard to endurance of the second growth during drought:—

Grasses.	*Clovers.*
1—Orchard.	1—Sanfoin.
2—Timothy.	2—Red Clover.
3—Rye-grass.	3—Alsike.
4—Sweet Vernal.	4—White.

19.—That in a trial of Golden Vine Peas with the common white variety, using Lime and Gypsum as fertilizers, the former gave 8 bushels more grain and 640lbs. more straw, while the Gypsum gave 5 bushels more grain and 130 lbs. more straw than the Lime.

The following Fall Wheats have been sown in the Experimental Plots:—

Essex Red.	Australian Pearl.
Egyptian.	New Zealand Velvet Chaff.
Diehl	Frampton's White.
Treadwell.	Excelsior.
Clawson.	Hedge Pin.
Gold Medal.	Canada Winter.
Golden Kernel.	Russian Winter Club.
Hybridized sort.	Fultz.
Silver Chaff.	English Winter.
Arnold's Victor.	Satin Chaff.
Giant Red Chaff.	Amber.
Lennies' White.	Mammoth.
Soule.	Diehl Fife.
Bull Forward.	Bush Prolific.
Spanish.	Tasmania.
Victoria.	Cook's White.
Mexican.	French.
Australian.	Canada White.
New Zealand Red Chaff.	May Red.
Oregon Club.	Victoria Purple Straw.

Mediterranean.	Bush's Large White.
Nursery.	White Lammas.
Tureana.	Michigan.
Arnold's Hybrid.	Champion Winter.
Bush's Hybridized.	Fife Club.
Tappahannock.	Red Winter.
Kentucky.	Blue Stem.
Post.	Siberian.
Duff.	Greek.
Rust-proof.	

These will be reported upon next year.

VIII.—THE CENTENNIAL SEEDS.

You are aware that the Honourable D. Christie, and others, obtained at Philadelphia many kinds of agricultural seeds for deposit and reference at Toronto, and that part of these were forwarded here for experiment.

I beg to report that we sowed a little of each in field A with the view to various facts :

1.—How far they were fresh and good for seed.

2.—What some were,—all not being named, or distinguished, as in the case of Winter and Spring wheats.

3.—Whether some were of any practical value, and

4.—Whether they would succeed in our climate.

Much of the seed had been old or destroyed by some process not uncommon in exhibition samples, as fully 50 per cent. did not germinate ; others, peas for example were marked by weevil, and despite the commendable precautions adopted at Toronto, it is feared that insect life kept good in several cases.

For the present therefore, and until with larger samples now obtained from the growth of the past season,—we can have quantity to compare and vary experiments, it will suffice to name those that have had fair success.

Besides the grains, we have kept specimens of the mature plants in most cases, and of course Winter Wheat cannot be reported upon until next season.

Wheat—(Spring).

1.—*Providence*, from Oregon, sown 2nd May, brairded 14th May, in head 31st June, and harvested 8th August. Grain light coloured when sown, is now red.

2.—*Click Club*, from Oregon, same dates as above.

3.—*Farmer's Friend*, from Tasmania, half germinated.

4.—*Goos*, from Iowa, very little came, in head 8th July, and harvested 18th August.

5.—*Russian Golden Straw*, from Iowa, half germinated on 15th May, headed 8th July, harvested 13th August.

6.—*Algerian*, from Iowa, half germinated 14th May, in head 2nd July, harvested 13th August.

7.—*Arnautka*, from Department of Agriculture U. S., brairded 14th May, headed 31st June, and harvested 9th August—some five varieties in the sample grown.

8.—*Bulmans*, from Prince Edward Island, in head 6th July, harvested 8th August, part dead.

9.—*Spring*, from France, brairded 15th May, in head 12th July, harvested 20th Aug.

10.—*Mammoth Spring*, from Washington, dates same as No. 9.

11.—*Chili*, from Washington, half germinated 20th May, headed 8th July, harvested 20th August.

12.—*Sonora*, from Washington, harvested 13th August.

13.—*Post McDonnell*, from Australia, in head 8th July, harvested 20th August.

14.—*Mammoth White*, from Oregon, " " "

15.—*Spring*, from Fort Pitt, harvested 8th August, germinated well ; badly mixed.

16.—*French Spring*, from Fort Pitt, same date as No. 8.

17.—*Illinois Spring*, " " "

18.—*Red River*, from Washington, badly rusted.
19.—*Cook's Spring*, from Washington, harvested 20th August.
20.—*White Tuscarora*, " " "
21.—*Bush Hard Time*, from Washington, harvested 9th August.
22.—*Hunter's White*, from New Zealand.
23.—*Great West Spring*, in full head 12th July, harvested 13th August.
24.—*White*, from Russia, " 9th " 10th "
25.—*Spelt* (German Wheat), from Germany, braided 18th May, and harvested 10th August.

The following wheats failed to germinate :—

Goldsmith, from Tasmania.
Lamard's Prolific, from "
Brœmar Velvet, from "

OATS :—

1.—*Early Trellow*, from Washington, harvested 20th August.
2.—*Barley* (Birlay ?), from Kansas, in head 31st June, cut 27th July.
3.—*Somerset*, from Washington, in full head 8th July, cut 28th July.
4.—*Brown*, from France.
5.—*Grey*, from France.
6.—*Colorado*, from Iowa, headed 31st June, cut 1st August.
7.—*White*, from Halifax, " 24th July.
8.—*Black Brown*, from France, headed 8th July, cut 6th August.
9.—*Side*, from Oregon, headed 8th July, cut 6th August.
10.—*Black*, from France, " " 20th "
11.—*White Shower*, from Iowa, " " 6th "
12.—*White*, from Colorado, headed 31st June, cut 26th July.
13.—*Short*, from Australia, " " 24th "
14.—*Bulman's Black*, from Prince Edward Island, in full head 8th July, and harvested 30th July.
15.—*White Russian*, from Washington, headed 8th July, cut 31st July.
16.—*White*, from Chicago, headed 8th July, cut 31st July.
17.—*Pole*, from Washington, " " 6th August.
18.—*Russian*, 31st July.
19.—*White*, from Russia, " " "
20.—*White*, from New Zealand, " " 8th August.
21.—*White*, from South Australia, headed 31st June, cut 27th July.
22.—*Burr*, from Washington, headed 31st June, harvested 31st July.
23.—*White Shower*, from Washington, headed 31st June, harvested 1st August.
24.—*Side*, from Washington, headed 31st June, harvested 31st July.
25.—*Poland*, from Tasmania, " 1st July, " "

BARLEY :—

1.—*Darling Downs*, two-rowed, in head 8th July, cut 4th August.
2.—*Long Two-rowed*, from Washington, " 31st July.
3.—*Spring*, from Kansas, headed 26th June, cut 30th July.
4.—*Red River*, from Washington, headed 25th June, cut 25th July.
5.—*Chevalier*, two-rowed, from Washington, headed 12th July, cut 8th August.
6.—*Thanet*, two-rowed, from Iowa, headed 8th July, cut 31st July.
7.—*Black*, from Spain, (a comparative failure).
8.—*Six-rowed*, from Washington, headed 24th June, cut 6th August.
9.—*Probestier*, two-rowed, from Washington, 4th "
10.—*Dark*, from Russia, in head 31st June, harvested 1st August.

The general character of many of these plants is given in the chapter on "Our Cereals of 1877."

INDIAN CORN.

KIND.	From.	Planted.	Gathered.	Head Characters.		
				Length.	Weight.	Rows.
				Inches.	Ounces.	
Yellow Dutton	Halifax, Kansas and Kentucky,	May 10th.	Aug. 30th.	9	6	8
Red	Kentucky	do	to Sept. 6th.	9	4	8
Yellow Brown	do	do	do 1st.	9½	5½	8
Light Yellow	do	do	do 4th.	8	4	14
Black	do	do	do 19th.	9½	7	8

Peas :—

Average date of sowing, 12th May; brairding, 20th May; flowering, 26th June; and harvesting, 10th August. We had the following sorts in very fair condition, of full podding and amount of straw :—Russian; Illinois extra early (harvested 18th July); New South Wales; Chick; Grey, from Tasmania; Horse, from Spain; Bishop's Dwarf, from Illinois; Little Gem, from Illinois; Yorkshire Hero, from Australia; and Full, and Small, from Russia.

Grasses, &c. :—

Rib Grass, from South Australia, strong and good.
Lucerne, from Russia and Spain, plentiful but not strong, the latter being best.
Golden Tares, from Tasmania, a fair crop.
Red Valentine Beans, from Illinois, destroyed by frost on 23rd June.
Red Clover, from Tasmania and Russia, a good show, but delicate plants.
Melilotus, a sweet purple clover, tender, fair crop.

Failures :—

The following did not germinate, or were so poor as to fall off soon afterwards :—Cotton, from Egypt; Dolichos Sesquipedete, from Egypt; Maringa Pterigosperma; Broom Corn; Robinia Psentovacia Hercharuntha; German (sweet) Rape; Tasmanian Rape; Hungarian Grass, from Iowa and Kentucky; Sugar cane, from Illinois; Hemp, from South Australia; Gaillardia Picta; Terminalia Molis; Parkinsonia Austeata; Tetragonum Carmetum; Prairie Grass, from South Australia; and Nacia Melanoseylon, from Tasmania.

IX.—OUTSIDE INSTRUCTION.

I consider it desirable that something be said as to what, and the manner in which, outside instruction is imparted to students, throughout the various departments—for upon the thoroughness of this depends the status of my division of the establishment.

The upkeep of a large farm like this has three main objects. In the most simple and comprehensive language, these are :

1.—Instruction by manipulation at everything.

2.—The maintenance of such a number and variety of live stock and implements as shall afford the necessary education.

3.—Such management as shall, under the circumstances, stand for lessons in liberal economy, and the best condition of things according to the experience of others, as well as our own experience, and established facts in the science and practice of modern husbandry.

To many it appears an easy thing to impart instruction, when the teacher is in possession of all the necessary skill and knowledge—little allowance being made for change of system, non-weariness in repetitions, the desirable command of temper, patience, care-

fulness in language, impartiality, appropriate discipline, and the non-committal to a single act that would stand as a bad example. How much there is in all this none can tell without trial—not of months but of years, and just as it is easy to correct and criticize the performances of others, so, in our case, I find many men wise and fatherly above anything to which I can lay claim.

That each student, or batch of students, is detailed daily and alternately to the field, stock, garden, and carpenter's shop, and that each must work at least five hours a day at anything with his own hands, you know. What the principal works are, and how they are done, you also know, so I need not elaborate. But there are some duties special to ourselves, and me particularly, to which I beg your attention.

When, at regular work under the various foremen, students have to be examined, in order to ascertain progress and record individual merit daily; lectures with me can be relieved by walks over fields in illustration or confirmation of class-room assertions, examination of stock and implements at home, visits to other herds and flocks, and attendance on sales and markets; and here allow me to note that no one man in my experience can command the attention and do justice to more than twenty students at the same moment outside,—whether in note-taking of field management, condition of soil, crop or stock, handling of implements, use of level, chain, or other special practice.

All writers on agricultural education place much value on a student being in a position to visit well managed farms, eminent herds and flocks, as well as markets and other sales of farm stock and crop. It is plain that such means of acquiring information, of checking one's own practice, of judging and making acquaintance with every form of animal life, and of studying the current prices and forms of conducting business, must really be invaluable to all farmers, but specially to young men preparing for the profession. I have found it to be so here. Experience has shown me that under proper management a very large proportion of the success of my class-room work lies in out-door visits. I say under proper management, as no practice is so open to misuse. Let me explain: I am lecturing on the characteristics of short-horned cattle; our own animals have been examined, both by outside visits and taking a particular one to the class-room platform; much interest is excited by this practical mode of procedure, for each student has to handle and explain every point himself, and in order still further to impress and amplify, a visit to a neighbouring breeder is decided upon. The nature and importance of this is explained, captains and drivers are appointed, the rule of the road laid down, and note-taking arranged. Supplied with judging papers (see "Judging of Cattle"), the farmer, on our arrival, gives a sketch of how his herd was made up, naming principal families and animals, and thereafter introduces us to each. I name one or two each of the most and least prominent animals, male and female, which are examined, handled, and valued according to our form. At college such papers stand for examination, and merit given in the usual manner. Again, we attend a market, the customs, rules, and tricks of which have been explained; private note-taking on the singularly various and fertile life of such an agency is also attended to, and in the class-room a formal report is made out by each, on forms provided. So again with reference to sales, where, besides the attendant lessons in the arrangement and conduction of business, we have a private examination of the animals previous to their disposal, in which, judging of pedigree, points and general stamp, we speculate as to value; thus, when put to the hammer, we gather checks on our own opinions, and altogether lay up much food for future use.

So then, all this without a systematic plan, would drift into mere holiday runs. In confirmation that it is very much otherwise, I have pleasure in enclosing reports by the second-year students, who, with myself, attended the joint sale of short-horned cattle at London, in June last.

You will allow me to take advantage of this public document to express my own thanks, the thanks of the students, and, may I add also, the thanks of the Government of Ontario, to the following gentlemen for cordial invitations to visit their establishments, some of which have already been taken advantage of:—

Thos. McRae,	breeder of	Galloway cattle, &c.,	Guelph.
Geo. Hood,	"	Hereford "	"
F. W. Stone,	"	S. Horns, &c.,	"

Geo. Rudd,	breeder of	Devon,	cattle, &c.,	Puslinch.
J. S. Armstrong,	"	S. Horns,	"	Eramosa.
J. & W. Watt,	"	"	"	Elora.
J. & R. Hunter,	"	"	"	"
W. F. Clarke,	"	Ayrshires,	"	Guelph.
W. Whitelaw,	"	Leicesters, &c,	"	"
James Cowan,	"	S. Horns, &c.,	"	Galt.
John Pipe,	"	S. Horns,	"	Guelph.
The Hon. Geo. Brown,	"	"	&c., "	Bow Park.

David Boyle, President of Elora Schools, for valuable lessons on visiting his Museum.
Robt. Little, Cheese Factory, Puslinch.
James Goldie, Flour Mills, Guelph.
Thos. McRae & Son, Woollen Mills, Guelph.

Another lesson, belonging properly to the outside, is reports by students on the result of experiments in the feeding of live stock, as well as those regularly on hand in the field experimental plots : Thus facts are impressed by the care required in gathering them and putting into shape,—facts in quantities and values of different kinds of food for different animals, its preparation, rate of consumption, cost, and effect under a variety of conditions, by character and age of animals in changes of temperature, and facts in character of soil and plant as affected by various manures, modes of cultivation, and weathers.

As a help to this work, and certainty of more value otherwise, as an exercise and matter of business, is the keeping of a Record of daily events on the farm—chiefly with reference to work,—why it is done, and its cost. I also allow merit for these papers at our examinations. Other forms of competition are ploughing-matches at home, spade-digging, sheep-shearing, turnip-thinning, and mechanical work. In ploughing, we have difficulty in satisfying the keen desire for practice on the part of almost every student. With the large number now on hand I am satisfied that anything more than two lessons each per annum cannot be overtaken, unless the plan is adopted of setting aside one team solely for this purpose, as well as one spot of land—a sort of perpetual-bare-fallow that would of necessity be turned over ten or twenty times a year. In ploughing competitions we note the following points :—1. Best feering ; 2. Clean cut, cut side and bottom ; 3. Best furrow, form and compactness ; 4. Grass or stubble covered ; 5. Best finish. Spading is easily arranged, and I find is an art needed, and appreciated by most.

Our first sheep shearing competition came off with much interest, and, as you can understand, it is only the second year students that are allowed this privilege. Our judging points for this work are :

Quality	50 Marks.
Expedition	30 "
Rolling Fleece	10 "
General Management	10 "

The mechanical competitions are regulated by quality of work, management of tools, and expedition.

JUDGING CATTLE.

When the Marquis of Tweeddale, some twenty years ago, advocated a change in the manner of judging cattle, he could have no idea that the United States would be the first to set the example, or that so late as their Centennial would mark, if it really does so, the inauguration of the new plan. I have no intention of making lament on the sort of Conservatism that guides the rural mind, even among the most intelligent farmers, in this very plain matter, but having introduced it as part of our teaching here, and recognising the great importance of the subject, some explanation will not be out of place.

Three men meet to say which one of five animals is best ; they examine, handle, argue, differ, re-examine, classify, and discuss until two agree, and of course the other has to submit. Three or four of the exhibitors are dissatisfied with the award and naturally demand

explanation, the invariable reply is something indefinite,—it is our opinion, the reasons are our own; if they condescend to any particulars, there is so much mixing with collateral references and individual positiveness that any committal to one defect or one distinct point is rare. Thus, much ill feeling is caused, and a great deal of harm often done to Agricultural Societies that are otherwise very prosperous. This well known state of matters can be easily remedied. When men are appointed to value a farm, arbitrate a difference in any business, or judge reaping machines and ploughs, they submit a written report setting forth the reasons for their decisions, in order that others may be satisfied of the line of action adopted, whether it is in accordance with the recognised best principles and other established rules of business. Why should the judging of animals be an exception to this simple and fair order of things? Why should not the directors of the Agricultural Societies hold the written awards in all such cases of importance as this—not necessarily for publication, but as documents of value for reference to those interested? Any one who is afraid to place his detail judgment on record is no judge; true, many men will unerringly sort a number of animals in their respective order of merit without any process of figuring or much reasoning, but while this is a gift to be admired and cultivated, it is not one that will give general public satisfaction.

With regard then to the system of judging by detail points having a certain value attached to each, it is evident that to make it universal there should be a recognised standard for each breed, and for this purpose it is only necessary that the leading societies agree to name a committee whose report should be held binding upon all English speaking lands at least. I do not say that the work of the committee would be simple, for among so many admirers of so many types, say of Short-horns, easy agreement could not be looked for. For example some wish to recognise colour, size and fatness, as points in Short-horns; others say they are quite unimportant, and perhaps undesirable.

In appending the scale of points used by us here, it will be understood that no pretention is made to completeness either in detail naming of points, or the relative value of the same—the object being to fix the principle and teach the plan. I take pleasure in adding the mean of last year's, judging by the students of five of our bulls, so as to give the public an idea of the process.

Can it be doubted that the new plan is much more correct, uniform, easy, and more educational?

STUDENT'S JUDGING OF BULLS.

Perfection.	POINTS.	Short Horn Duke of Bedford.	Hereford Duke of Connaught.	Devon Prince Albert Victor.	Ayrshire Sir Walter.	Aberdeen Poll Gladiolus.
10	Muzzle	8	8	9	8	10
20	Head	16	13	16	13	20
10	Eye	10	10	10	10	10
10	Horn	10	7	10	6	
10	Ear	10	10	10	10	10
20	Neck	15	20	20	15	15
140	Chest	105	115	120	105	90
40	Brisket	30	35	35	30	30
30	Shoulders	27	23	27	27	22
20	Fore Ribs	15	17	16	17	15
70	Crops	50	55	55	60	50
10	Fore Legs	10	10	10	10	10
20	Spine	15	20	20	20	15
40	Loins	35	38	40	35	30
30	Hips	25	27	30	25	25
20	Hinder Ribs	18	20	18	16	16
20	Flank	16	15	20	15	15
30	Rumps	25	28	28	25	20
10	Tail	8	10	10	8	10
30	Thighs	30	30	30	30	25
20	Twist	15	20	20	18	15
20	Hind Legs	15	15	10	20	20
20	Hair	20	15	15	20	20
20	Skin	15	15	12	15	15
20	Udder, or Purse	20	20	20	20	20
20	Bone	15	20	20	20	20
130	Quality	115	110	120	120	110
30	Evenness of Flesh	25	30	30	25	25
20	Carriage	20	15	20	20	20
100	Good Breeder	90	100	100	100	100
10	Colour		10	10		10
1000		833	881	911	863	813

VISIT TO MICHIGAN STATE AGRICULTURAL COLLEGE.

Having made a visit to this sister Institution in June last, and been requested by you to state my views on such facts as came under my observation, and that may be considered of practical value to us, I shall now do so very briefly.

And first, the age of this, the oldest school of the kind in America is apparent by the many fine standard trees and shrubs that clothe the well kept grounds. Twenty years have given an appearance that is very pleasing—speaking at once of much taste, and conveying an idea of stability not to be changed or swept away. In place of one connected range or block of buildings as with us, or at Cirencester, in England, the residences of professors are separate from the college and students quarters, the two latter being also apart at irregular distances, occupying choice sites, but all convenient to each other, and to the the barns. Brick and lumber are the building materials. A small river runs through the farm—which besides the direct value to live stock and recreation to students, would also be a thing of beauty' were logs, stumps and unsightly trees made to give place to sloping banks, grass, and shrubs. Fields are well laid off,—with the old snake fences still ruling however.

You are aware that these state colleges are largely educational other than Agricultural or in its allied sciences and arts, so that in speaking of an agricultural college in this Michigan example, we have to include a liberal English course at least, extending over four years. To the latter I need make no reference other than the fact that its association with agriculture proper is more a matter of necessity than with us, by reason either of a different national school system, or agriculture being made subject to general education, for the purpose of securing larger grants of moneys; for besides revenue from endowed lands the State has still to allow annual sums for maintenance.

The system of detail account-keeping is good. With regard to domestic arrangments I found the monitorial system in use: The Hall, including the dormitories and boarding arrangements, is divided into districts, over each of which a captain and lieutenant are appointed from among the students by their own choice, but subject to approval of the faculty. This appeal to discipline by self-government is said to work well.

The chemical department is evidently very complete, little inferior, if it is so, to some university ones. With a separate block of buildings, including storage, dressing-room, library, office, laboratory, lecture amphitheatre, and working room, all completely finished, and supplied with first-class apparatus, there seemed little left to desire.

In horticulture much attention is paid to out-door decoration, and some plot experiments, with an arboretum, are under good management. There is a well-built modern range for conservatory, vinery, and other house plants.

There is no mechanical department proper,—no instruction in repairs, use of tools, or the making of new articles. The management and mode of distributing implements are excellent.

The steading of offices and barns are commodious enough for the requirements, if they are now modern enough in arrangement. The land worked as a farm is not over 200 acres, though 600 surround the college. The system of cultivation is under a management that cannot be other than good, but how far it is handled as a special and practical detail education, I had not time to so thoroughly examine as to risk an opinion. Meantime, I have, however, too much respect for those I met at Michigan, and am too much interested in the progress of our profession to pass over one or two things:

1.—The character of the thorough-bred stock is decidedly below what it should be in these days.
2.—I am open to correction in saying that the only threshing machine is a *two-horse tread-mill.*
3.—There is no permanent field experimental plot.
4.—Vegetable garden produce is at a minimum.

I venture the following analysis of the comparative importance that seems to be attached to education, there:

English, including a general education	50
Botany and Horticulture	20
Chemistry	20
Farming	10
	100

I cannot too highly compliment the State of Michigan on having excellent business men, and thorough gentlemen in the management of their Agricultural College.

X.—RECOMMENDATIONS.

I beg to advise with reference to moneys required for various purposes in 1878. In this I shall be brief, in the hope that the fact of the recommendation being made will suffice to show its necessity without much argument being required. I shall ask for nothing that is not absolutely needed to maintain our status, support progress, and otherwise carry out the objects of the institution.

1.—*Progress of Permanent Improvements.*

A question of some importance is that of completing all the permanent improvements required on the farm, at once, or extending them over a series of years. There are good reasons for either view. If at once, the public may be pleased with an earlier *model*, and larger earlier returns may be looked for as regards cropping. If extended over a series of years, the education that necessarily accompanies such works as drainage, fencing, and

reclamation of land will be imparted to a much larger number of students than if all were done in one or two seasons,—and the expense will be distributed. I approve of the latter view, placing, as I do, much more value on education than on attention to any public humour as regards apple-pie order, or immediate large returns. At once means :

Drainage	$3,000 00
Fencing	2,500 00
	$5,500 00

A decision on this point would simplify arrangements, and make work more pleasant. Meantime I ask $1,500 to drain parts of fields 14, 15, 16 and 17, and $1,000 to fence boundary lines, without which all our previous expenditure in these directions will stand as examples of want of plan, purpose and progress.

Our manure court is not equal to the average Canadian one either in position, proper foundation or shelter, and while I support the view that much money should not be expended on what is no model steading of offices, I cannot overlook our immediate wants, especially in relation to education, and therefore have no hesitation in asking for $1,200 to erect a cover for manure, a shelter for animals, a means of collecting liquid manure, and to give, overhead, an addition to our Granary and Barn.

Connected with this is proper footing for cattle, and my own work along with the students in the examination of individual animals immediately outside stables and sheds. We have all along borne with the rough, untidy and awkward gravelly surface to and from passages, and cannot delay in making up to what our neighbours possess. This is $250.

Again, you have yourself very properly brought under my notice the great danger incurred by the present mode of housing bulls, where two are tied alongside, and where in the event of one getting loose, $800 or $1,000 might be lost any morning. This seems careless enough, upon the fact that $1,200 would obviate the risk, by the building of wooden partitions, feeding passage and outside courts, so that the animals might run at large, each in his own place,—securing safety and more health by exercise.

Upon the back of double students, we have had to establish a tool and implement check similar to what, with myself, you saw at Michigan. This is working well in the mechanical department, where the necessary accommodation exists, but neither order nor accuracy can be carried out in the present field tool house—a low "lean-to" over a root cellar, small, damp and dark. Many farmers, without pretending to model, possess a harness room adjoining stables, both for preservation, order, and safe-keeping, so that in connection with the tool house I propose the following additions to our buildings.

The implements and harness would take the place of the temporary waggon and cart shed, and of course another range would have to be provided for the latter as shown on sketch between stable and piggeries. The estimated cost of these is :

Harness Room	$500 00
Implement Room	500 00
Waggon and Cart shed	350 00
	$1,350 00

I want $1,000 for experiments, in the feeding of cattle, sheep and pigs, and for the regular maintenance of the Permanent Experimental Plots as well as further trial of the Centennial seeds and an allowance to the chemist for minute special manure enquiries. I am of opinion that one of our present most prominent duties is to ascertain how far, in our conditions of climate, we can follow the British practice of feeding or fattening steers in winter upon turnips and hay, or straw alone, in the whole, or cut state respectively, and raw or cooked in the latter case. We may not for many years have the like opportunity, as, with over 600 tons of turnips and mangolds, now safe in store, more objects than one will be attained by the purchase of experimental stock.

The following implements are indispensable for the future :

Horse Lawn Mower	$160 00
Hand " "	25 00
Single Waggon	100 00
Plough for Experimental Department	35 00
Iron Roller	60 00
Strong Horse-power Root Pulper	50 00
Wooden Harrows	20 00
Stone Lifter	35 00
Circular Saw, Bench, &c.	50 00
Gang Plough	30 00
Cultivator	30 00
Improved Grain Drill	100 00
	695 00

In thanking the government for the liberal response to my wants of last year—all being granted with one exception, I again ask for the exception,—$250 to begin an Arboretum as recommended by the commissioners in 1874.

By reference to the particular subjects of education as explained under " Outside Instruction," I trust I have but to ask to receive $250, for the purpose of incidental expenses in visiting herds and flocks, markets and sales, and in the management of this, I beg to suggest that your own special order be received previous to each disbursement.

As elsewhere noted, the buildings connected with the horticultural department are almost completed, and all that is now needed to make things model is a vinery to cost $150, and $350 for heating apparatus to the whole green-house range.

The annual allowance to supplement feed and fodder is, as it should be, a lessening one where progress exists, and for 1878 the estimate is only $500.

And now finally on a most important subject.

While it may be said that our various breeds of animals are kept largely for educational purposes, we are also to a certain extent breeders, and as such have to look forward to an infusion of new blood as required in the progress of our young females. Anything like in-and-in breeding, except as a matter of experiment, cannot be entertained here, so that in pig and sheep life we have already to arrange for a change of males before next autumn. This applies to South Downs, Cotswolds, and Border Leicester sheep, and Windsor pigs.

I believe I but express the wish of the progressive farmers of the Province in saying that the Government Farm should have a breed of horses suitable for general farm-work —a combination of strength and activity—from which to breed and give service to those who wish it. Many have spoken to me on the subject, and the general feeling is in favour of the lighter stamp of Clydesdale.

As regards the mode of obtaining these animals, it is obvious that direct importations would be of more national benefit than selections from those already imported.

One South Down Ram	$150 00
" Cotswold Ram	200 00
" Border Leicester and 5 Ewes	500 00
" Lincoln and 5 Ewes	550 00
" Berkshire Boar	150 00
" Windsor "	100 00
" Clydesdale Stallion and two Mares	3,000 00
	$4,650 00

CLASSIFICATION OF ESTIMATES.

1. Permanent Improvements	$6,750 00
2. Live Stock	4,650 00
3. Implements	695 00
4. Experiments	1,000 00
5. Trees and Shrubs	250 00
6. Feed and Fodder	500 00
7. Incidentals	250 00
	$14,095 00

Such, I repeat, are the requirements of the outside departments for the coming year —wants that cannot be curtailed if steady progress is desired, and they are no more than a first-class farmer would estimate for himself. We have already made such advancement that, rather than retrograde, or stand still, it would be advisable to change materially the aim of the Farm Department. If no more is required than an experimental station, and a model farm of a size to represent the mean of a Canadian one, we have 300 acres too much, but if we are to keep up our breeding stock as it ought to be done, no change is necessary. I say this in order to make my position clear with you and the public, as in no case could I be asked to be responsible for the future, should funds not be forthcoming. It might be argued that the sale of these 300 acres would form a fund from which the interest would suffice to make experiments and assist in maintaining the smaller model.

XI.—SUMMARY.

What the position of the outside departments of the School of Agriculture now is, may, it is fairly presumed, be gathered from the foregoing report.

With the tacit understanding, in 1876, that five years would be allowed in which to undertake the various improvements deemed necessary to place the whole in a condition deserving of imitation—that will stand as a model—it is our duty to ask if, during the past year, progress has been made in accordance therewith.

To summarise: an indefinite mode of cropping has given place to one that is at least systematic and based on sound sense, supported by practical and scientific experience; new lands have been brought under the plough by the removal of obstructions in the form of tree-stumps, stones, and water, and old lands, by drainage, have been made amenable to modern cultivation; fencing, with the view to the economy of space, utilization of old, and examples of various forms of the same and different materials, now sub-divide two-thirds of the farm.

We have already on record, for future use by our own cultivation, the characteristics of some 230 kinds of wheat, oats and barley, besides over twenty sorts of turnips and mangolds, and numerous other agricultural products. By special experiment in modes of cultivation, uses of manures, and other conditions affecting vegetable growth, some important facts hitherto doubtful, unknown, or disbelieved, in ordinary practice, have been established or laid open as interesting for further investigation; and similar points in animal life have received careful attention, as from time to time illustrated in the feeding of cattle, sheep, and pigs.

The general management of live stock in all possible forms, with all the leading breeds, is a subject of daily study, wherein we should be gathering valuable information in acclimatization, breeding, crossing, upbringing of young, soiling, riding, milking, wool-bearing, and others:—in practical proof of part success at least, the recent sale of surplus stock after two years' management, stands as a fair beginning, under considerable commercial depression.

We are in possession of many more horticultural and arboricultural subjects than the largest and best of farmers in any country requires, and more than many professional establishments could catalogue as personal property; and our mechanical appliances, while not complete, have kept pace with the requirements of a progressive plan, whereby anything outside the needs of an extensive first-class farmer, is not recognized.

These, in their innumerable detail and connections, go to make the whole subject of outside work and education in which the Government of Ontario have now an invested capital of over $100,000.

The public question therefore should be,—Is a fair interest being realised on this investment in the shape of,—education thoroughly applied and appreciated,—in products, economically and successfully matured for national distribution, and in special enquiries on the relations of animal and vegetable life? The country answers in the affirmative by her one hundred sons now here or waiting for admission—not in patronage of any beginning nor by special solicitation, but solely as the natural response to a want thus so liberally supplied, and now established upon its own merits.

Such being the case, the future of The Ontario School of Agriculture ought to take a proud place in the annals of the country—big with associations, in the individual experience of our future Legislators, who will recall the pleasant and profitable time of their early manhood at Guelph, as they support the liberal and unanimous estimates of the coming year—big with profitable reminiscences to the aged farmer as he reminds his son of the purchase at The Experimental Farm, from which the valuable herd that now fills his stalls was established—and big in the experience of others who will in many ways speak kindly of their *Alma Mater*.

Two of the five years have gone,—what the remaining may record will depend, not only on the farmers themselves, through whom supplies are virtually good, but the teachers must be wary, that uot one essential is allowed to fall off, or even stand still,—there must be a moving forwards, or there may be death.

I wish to express the many obligations under which I lie to Mr. Johnston, the President of the Institution, in special duties during my occasional absence, and in general help freely given wheu wanted,—as also to the several foremen, who have all along, under difficulties and worries, evinced an undeviatiug interest in our work—emulation and harmony always ruling.

To Messrs. Campbell, Sangster, and Carpenter, superintending students of the experimental plots, and Mr. Davies, of feeding experiments, I beg to tender thanks for assistance well and faithfully done.

I have the honour to be, sir,
Your obedient servant,
W. Brown.

To the Honourable S. C. Wood,
Commissioner of Agriculture.

APPENDIX.

INVENTORY AND VALUATION OF OUTSIDE DEPARTMENTS.

Farm—Live Stock.

Horses.

11	Working horses	$1,390 00	
2	Two-year-old colts	200 00	
1	One-year-old colt	75 00	
			$1,665 00

Cattle.

Short-horns:

1	Two-year-old bull	$ 350 00	
2	Bull calves	200 00	
5	Cows	2,000 00	
1	One-year-old heifer	200 00	
2	Heifer calves	300 00	
1	Steer calf	25 00	
			$3,075 00

Herefords:

1	Three-year-old bull	$300 00	
2	Cows	600 00	
			$900 00

Devons:

1	Two-year-old bull	$300 00	
1	Three-year-old heifer	300 00	
			$600 00

Ad een Polls:

1	Two-year-old bull	$200 00	
2	Cows	600 00	
1	Heifer calf	100 00	
			$900 00

Ayrshires:

1	Three-year-old bull	$200 00	
2	Cows	400 00	
1	Three-year-old heifer	200 00	
			$800 00

Grade Short-horns:

6	Cows	$300 00	
2	Two-year-old heifers	100 00	
2	One " "	60 00	
3	Heifer calves	30 00	
1	One-year-old steer	25 00	
			$515 00

Working and Fattening Oxen:

2	Working oxen	$100 00	
4	Feeding steers	280 00	
2	Feeding cows	160 00	
1	Feeding heifer	75 00	
			$615 00

Carried forward $9,070 00

Brought forward			$9,070 00

SHEEP.

Cotswolds:			
2 Two-shear rams	$150 00		
25 Ram lambs	625 00		
46 Breeding ewes	1,380 00		
16 Ewe lambs	690 00		
			$2,845 00
Leicesters:			
2 Two-shear rams	$150 00		
6 Ram lambs	120 00		
18 Breeding ewes	360 00		
6 Ewe lambs	90 00		
			$720 00
South-Downs:			
1 Ram lamb	$ 30 00		
12 Breeding ewes	240 00		
7 Ewe lambs	84 00		
			$354 00
Oxford-Downs:			
1 Two-shear ram	$ 100 00		
3 Breeding ewes	150 00		
2 Ewe lambs (cross)	25 00		
			$275 00
Grade and Feeding:			
4 Grade-breeding ewes	$40 00		
6 Fattening ewes	60 00		
1 " wether	10 00		
			$110 00

PIGS.

Berkshires:			
1 Aged Boar	$150 00		
5 " Sows (breeding)	200 00		
1 Sow Pig 6 months old	25 00		
9 Small Pigs 1 month old	100 00		
			$475 00
Prince Albert Windsor:			
1 Aged Boar	$50 00		
2 " Sows (breeding)	60 00		
			$110 00

DOGS.

2 Dogs	$50 00		
1 Bitch	30 00		
			80 00
			$14,039 00

IMPLEMENTS.

4 Waggons	$200 00	
1 Truck-waggon	50 00	
1 Democrat	50 00	
2 Carts	65 00	
8 Sets of Double-trees	16 00	
6 Neck-yokes	6 00	
3 Pairs of Bob-sleighs	80 00	
1 Long-sleigh	20 00	
Carried forward		$487 00

	Brought forward	$487 00
1	Pleasure-sleigh	40 00
1	Seed Drill	60 00
1	Broad-cast Seeder	60 00
2	Reapers	130 00
2	Mowers	125 00
2	Horse-rakes	40 00
1	Cultivator	20 00
2	Horse-powers	180 00
3	Jacks	50 00
2	Separators	250 00
8	Shafts	30 00
1	Drag Sawing Machine with Saws	35 00
2	Fanning-mills	40 00
	Wheel-barrows, Curry-combs, Brushes, Oil-cans, Wrenches, Saws, Hammers	30 00
4	Iron Ploughs	30 00
3	Iron Beam Ploughs	45 00
1	Metal-beam Plough	10 00
1	Double-mould Board Plough	30 00
2	Gang Ploughs	40 00
1	Sub-soiler	20 00
2	Scufflers	30 00
1	Turnip-drill	12 00
4	Sets of Iron-harrows	60 00
1	Wooden-roller	20 00
	Shovels, Spades, Forks, Stone-boat	70 00
5	Sets of Team-harness	150 00
6	Sets of Plough-harness	60 00
1	Set of Light harness	30 00
2	Sets of Cart-harness	25 00
1	Barn-truck	4 00
2	Sets of Weighing-scales	40 00
	Half-bushel measures, Horse-blankets, Bags, Chains, Picks, Baskets, Scythes, &c	100 00
4	Hay Racks	32 00
1	Water-cart	90 00
1	Straw-cutter	30 00
1	Grain-crusher	25 00
1	Cake-crusher	20 00
3	Root slicers and pulpers	80 00
	Poultry implements	15 00
75	Cattle chains	30 00
8	Bull leaders	16 00
2	Feed boilers	8 00
	Sheep racks, troughs, &c.	100 00
		$2,759 00

GARDEN.

1000	Flower pots	$60 00
3	Rakes	3 00
16	Spades	20 00
12	Shovels	15 00
12	Draw hoes	8 00
	Carried forward	$106 00

	Brought forward	$106 00
5	Dutch hoes	3 00
3	Scythes and snaiths	5 00
2	Garden ploughs	20 00
1	Cultivator	8 00
2	Wheel-barrows	6 00
5	Screens	5 00
3	Trowels	1 20
6	Pruning saws	4 00
4	Manure forks	3 00
3	Potato forks	4 00
2	Garden reels and lines	3 00
3	Tree scrapers	0 50
5	Hammers	3 00
1	Pair of edging shears	2 00
2	Pairs of hedge shears	4 00
6	Watering pots	7 50
1	Pair of pruning shears	3 00
1	Syringe	5 00
2	Pruning knives	2 00
40	Hot-bed lights	70 00
3	Picks	3 50
	Knife, bill, hook, dibble	5 00
1	Set double harness	30 00
1	Set cart harness	8 00
1	Garden cart	40 00
1	Gravel screen	15 00
1	Set garden harrows	10 00
1	Road scraper	5 00
1	Garden roller	10 00
1	Haud cart	3 00
2	Garden sickles	0 50
1	Mower	40 00
2	Edging knives	2 00
4	Spuds	1 00
1	Stove	13 00
4	Potatoe dusters	1 00
1	Seed drill	7 00
1	Steel square	2 00
	Compass, plyers	1 00
6	Baskets	1 50
3	Thermometers	1 50
10	Marking irons	10 00
2	Axes	3 50
24	Hyacinth glasses	$4 00
1	Office desk	2 50
6	Pick handles	1 50
4	Hay rakes	0 50
3	Markers	0 75
1	Crow-bar	1 50
4	Hand glasses	4 00
2	Brooms	0 60
2	Working horses	300 00
		$794 05

MECHANICAL DEPARTMENT.

6	Hand cross-cut saws	$9 00
3	Rip saws	5 25
3	Fine cross-cut saws	4 75
1	Compass	1 00
3	Draw-knives	3 00
3	Braces	7 50
1	No. 3 bit; 1 No. 4 bit	10 00
3	" 5 bits; 5 " 6 bits	
2	" 7 " 7 " 8 "	
1	" 9 bit; 5 " 10 "	
2	" 12 bits; 2 " 14 "	
1	" 15 bit; 2 " 16 "	
1	Boring machine	6 00
2	Car ½ in	0 80
20	Gimlet bits	2 50
1	Screw-driver bit	0 12
2	Oil-stones	1 25
3	Smoothing-planes	5 40
1	Jointer	2 50
6	Half-Jointers	9 00
6	Jack-planes	6 00
1	Iron circular plane	4 50
1	Set hollows and round No. 16	0 50
1	" match ½ inch	0 85
1	" " "	1 25
1	Side bead ⅝ "	0 75
1	" 1 "	0 40
1	" ¾ "	0 40
1	" ¼ "	0 40
1	Centre bit ⅝ "	0 40
1	Rabbit plane 1½	1 00
1	" ¾	1 00
11	Hammers	11 00
1	Stone	1 00
1	Bench axe	4 00
1	Broad axe	3 50
1	Screw-wrench	2 00
2	Cold chisels	50
2	Spoke shaves	1 00
4	Try squares	1 60
1	Framing square	1 25
1	Panel framing square	1 25
2	Mallets	40
1	Level	1 25
3	Drag saws	15 00
2	Large cross-cut saws	6 00
1	Framing saw	2 50
3	Gauges	90
1	Trowel	1 00
6	Screw drivers	2 40
2	Chalk lines	40
1	Common line	1 25
2	Tool bags	80
1	Wire-tightener	3 00
	Carried forward	$148 52

Brought forward	$148 52
1 Bench-brush	40
5 Carpenter's benches	35 00
2 Ladders	6 00
2 Scratchawls	10
4 Paint brushes	4 00
4 5 Gallon oil-cans	4 50
3 Gimlets	45
1 Grind stone	3 00
1 Store	6 50
	$207 47

ABSTRACT OF INVENTORY AND VALUATION.

Live Stock	$14,339 00
Farm Implements	2,759 00
Garden	494 05
Mechanical	207 47
	$17,799 52

ESTIMATES

OF THE

PROVINCE OF ONTARIO,

FOR THE

FINANCIAL YEAR ENDING 31ST DECEMBER,

1878.

Toronto:
PRINTED BY HUNTER, ROSE & CO., 25 WELLINGTON ST. WEST.
1878.

SUMMARY

Of the estimated Expenditures of the Province of Ontario, for the Financial Year ending 31st December, 1878.

No.	SERVICES.	Page.	TO BE VOTED. For current expenditure.	On capital account.	For other purposes.
			$ cts.	$ cts.	$ cts.
I.	Civil Government	3	158,897 00		
II.	Legislation	7	131,350 00		
III.	Administration of Justice	8	294,960 00		
IV.	Education	11	544,715 00		
V.	Public Institutions, Maintenance	16	507,296 00		
VI.	Immigration	25	37,500 00		
VII.	Agriculture, Arts, Literary and Scientific Institutions	26	103,450 00		
VIII.	Hospitals and Charities	27	66,638 12		
IX.	Miscellaneous Expenditure	28	55,447 50		
X.	Public Buildings—				
	(1) Repairs	28	9,700 00		
	(2) Capital account	28		308,986 56	
XI.	Public Works—				
	(1) Repairs	31	3,700 00		
	(2) Capital account	31		24,300 00	
XII.	Colonization Roads	31		85,700 00	
XIII.	Charges on Crown Lands	34	89,000 00		
XIV.	Refund Account	34			70,713 76
XV.	Unforeseen and Unprovided	36	50,000 00		
	Total		2,052,653 62	418,986 56	70,713 76

1. Current expenditure for 1877	2,052,653 62
2. On capital account	418,986 56
3. Other purposes	70,713 76
Amount of Estimates	2,542,353 94

ESTIMATES OF EXPENDITURE

OF THE

PROVINCE OF ONTARIO,

FOR THE YEAR 1878.

To be voted per Statement (A) .....$158,897 00.

I.—CIVIL GOVERNMENT.

No. of Vote.	A.	To be voted for 1878.	Voted for 1877.
	To Salaries and Contingencies of the several Departments at Toronto:	$ cts.	$ cts.
1	Government House	5,580 00	5,512 00
2	Lieutenant-Governor's Office	3,350 00	3,350 00
3	Executive Council and Attorney-General's Department	14,980 00	15,170 00
4	Treasury Department	16,600 00	17,900 00
5	Secretary and Registrar's Office	26,025 00	25,300 00
6	Department of Public Works	20,172 00	20,022 00
7	*Do* Agriculture	1,200 00	1,200 00
8	*Do* Immigration	1,400 00	1,400 00
9	Public Institutions	7,350 00	6,650 00
10	Crown Lands Department	52,280 00	52,060 00
11	Miscellaneous	9,960 00	10,210 00
		158,897 00	158,774 00

SERVICE.	To be voted for 1878.	Voted for 1877.
	$ cts.	$ cts.
1. GOVERNMENT HOUSE.		
Expenses.		
Water	265 00	265 00
Gas	900 00	900 00
Fuel	2,000 00	2,000 00
Repairs	700 00	700 00
Furnishings	200 00	200 00
Planting and Plants	100 00	100 00
Gardener and Caretaker	500 00	432 00
Assistant Gardeners	715 00	715 00
Contingencies (clearing away snow, carting ashes, sweeping flues, &c.)	200 00	200 00
	5,580 00	5,512 00

I.—CIVIL GOVERNMENT.—*Continued.*

SERVICE.	To be voted for 1878.	Voted for 1877.
2. Lieutenant-Governor's Office.	$ cts.	$ cts.
Salaries.		
Private Secretary	1,200 00	1,200 00
Official Secretary	800 00	800 00
Messenger	400 00	400 00
Expenses.		
Contingencies	950 00	950 00
	3,350 00	3,350 00
3. Executive Council and Attorney-General's Office.		
Salaries.		
Attorney-General and Premier	5,500 00	5,500 00
Clerk of Executive Council and Deputy of Attorney-General	2,800 00	2,800 00
Secretary	1,200 00	1,200 00
Assistant Clerk of Executive Council and Attorney-General's Department	1,000 00	900 00
Second do do do	600 00	600 00
Third do do do	400 00	600 00
Assistant Messenger	160 00	250 00
Expenses.		
Towards establishing a Law Library	400 00	400 00
Fuel, gas and water $580 00		
Rent 1,200 00		
Housekeeper 500 00		
Fireman 360 00		
½ of $2,640 00	1,320 00	1,320 00
Contingencies, including stationery and repairs	1,600 00	1,600 00
	14,980 00	15,170 00
4. Treasurer's Office.		
Salaries.		
Treasurer salary	4,500 00	4,500 00
Accountant	2,000 00	1,800 00
Clerk	1,000 00	1,000 00
Shorthand Writer and Clerk of Contingencies	1,000 00	1,000 00
Clerk	800 00	800 00
Messenger and Clerk	500 00	500 00
Audit Branch.		
Auditor	1,400 00	2,000 00
Book-keeper	1,100 00	1,100 00
Clerk (Surplus Distribution, Insurance and Municipal Loan Fund)	.....	900 00
Expenses.		
Cost of maintenance of East Wing, including repairs, one-third formerly charged to each Department	2,000 00	2,000 00
Housekeeper, with house, fuel and light	400 00	400 00
Fireman	400 00	400 00
Contingencies	1,500 00	1,500 00
	16,600 00	17,900 00

I.—CIVIL GOVERNMEMT.—*Continued.*

SERVICE.		To be voted for 1878.	Voted for 1877.
		$ cts.	$ cts.
5. Secretary and Registrar's Office.			
Salaries.			
Secretary and Registrar		4,500 00	4,500 00
Assistant Secretary		1,600 00	1,600 00
Clerk		900 00	900 00
Do		800 00	700 00
Do		700 00	700 00
Clerk (Proportion of Shorthand-writer)		300 00	600 00
Deputy Registrar		1,200 00	1,200 00
Clerk		800 00	750 00
Do		700 00	600 00
Messenger		400 00	400 00
Expenses.			
Printing and binding	$700 00		
Stationery	400 00		
Postage and telegrams	700 00		
Contingencies	300 00		
		2,100 00	2,350 00
Registrar-General's Branch.		14,000 00	14,300 00
Salaries.			
First Clerk		1,200 00	1,200 00
Clerk		800 00	700 00
Two Clerks, $800 each		1,600 00	1,400 00
Clerk		700 00	500 00
Do		500 00	700 00
Expenses.			
For supply of blank forms to Postmasters		300 00	500 00
Indices		200 00	200 00
Schedules, slips and circulars		1,100 00	1,100 00
Stationery and printing		300 00	300 00
Postages		250 00	300 00
Express charges		25 00	50 00
Travelling expenses in inspecting District Registrars		500 00	600 00
Binding Returns (2 years)		100 00	200 00
Contingencies for this Branch		150 00	150 00
License and Administration of Justice Accounts.			
First Clerk		1,600 00	1,600 00
Accountant, License Branch		1,200 00	
Clerk		1,000 00	1,000 00
Do		500 00	500 00
6. Department of Public Works.		12,025 00	11,000 00
Salaries.			
Commissioner		4,500 00	4,500 00
Architect		2,200 00	2,200 00
Engineer		2,000 00	2,000 00
Secretary of Public Works		1,750 00	1,600 00
Accountant and Law Clerk		1,200 00	1,200 00
Architectural Draftsman		939 00	939 00
Engineering do		939 00	939 00
Assistant do		800 00	800 00
First Clerk		800 00	800 00
Second do		700 00	700 00
Carpenter engaged on public buildings generally		624 00	624 00
Messenger		400 00	400 00
Expenses.			
½ of cost of office maintenance (see details under Executive Council Office)		1,320 00	1,320 00
Contingencies		2,000 00	2,000 00
		20,172 00	20,022 00

I.—CIVIL GOVERNMENT.—*Continued.*

SERVICE.	To be voted for 1878.	Voted for 1877.
	$ cts.	$ cts.
7. Department of Agriculture.		
Salaries.		
Secretary	800 00	800 00
Expenses.		
Contingencies, including stationery, postage, and repairs	400 00	400 00
	1,200 00	1,200 00
8. Immigration.		
Secretary	1,200 00	1,200 00
Contingencies	200 00	200 00
	1,400 00	1,400 00
9. Public Institutions.		
Salaries.		
Inspector	3,000 00	3,000 00
First Clerk	1,000 00	900 00
Second Clerk	700 00	700 00
Shorthand-writer and Clerk *(proportion only in 1877)*	1,000 00	400 00
Messenger—Youth	250 00	250 00
Expenses.		
Travelling	700 00	700 00
Postage $200 00		
Printing and stationery 300 00		
Stationery 50 00		
Contingencies 150 00		
	700 00	700
	7,350 00	6,650 0
10. Crown Lands Department.		
Salaries.		
Commissioner	4,500 00	4,500 00
Assistant Commissioner	2,800 00	2,800 00
Law Clerk	1,800 00	1,800 00
Shorthand-writer and Clerk	1,000 00	1,000 00
Land Sales and Free Grants:—		
Chief Clerk	2,000 00	2,000 00
Clerk	1,700 00	1,700 00
Do	1,250 00	1,250 00
Do	1,000 00	1,000 00
Do	850 00	850 00
Do	750 00	.....
Surveys, Patents and Roads:—		
Deputy Surveyor-General	2,000 00	2,000 00
Clerk	1,250 00	1,250 00
Do	950 00	730 00
Chief Clerk Patents	1,380 00	1,380 00
Clerk	1,200 00	1,200 00
Do	1,100 00	1,100 00
Superintendent of Colonization Roads	1,800 00	1,800 00
Clerk	1,000 00	1,000 00
Woods and Forests:—		
Chief Clerk	2,000 00	2,000 00
Clerk	1,200 00	1,200 00
Do	850 0 0	850 00
1	700 00	700 00

I.—CIVIL GOVERNMENT.—*Concluded.*

SERVICE.	To be voted for 1878.	Voted for 1877.
10. Crown Lands Department.—*Continued.*	$ cts.	$ cts.
Salaries.—Continued.		
Accounts:—		
Accountant	2,000 00	2,000 00
Bookkeeper	1,250 00	1,250 00
Clerk	1,250 00	1,250 00
Do	850 00	850 00
Do	750 00	.....
Registrar	1,600 00	1,600 00
Housekeeper, with house, fuel and light	500 00	500 00
Messenger, do do	500 00	500 00
Expenses.		
Contingencies, including repair, west wing	10,500 00	12,000 00
	52,280 00	52,060 00
11. Miscellaneous.		
Cost of Official Gazette	4,200 00	4,200 00
Queen's Printer, salary	1,200 00	1,200 00
Clerk	360 00	360 00
Contingencies, including stationery and postage	100 00	100 00
Inspector of Registry Offices (including travelling expenses)	2,000 00	2,000 00
Inspector of Division Courts	1,400 00	1,400 00
Do Travelling Expenses	400 00	650 00
Inspection of Offices of Deputy Clerks of the Crown, Deputy Master and Registrars in Chancery and County Courts, travelling expenses	300 00	300 00
	9,960 00	10,210 00

II.—LEGISLATION.

To be voted per Statement (A.).....$131,350 00.

No. of Vote.	A.	To be voted for present Session, and for Salaries, &c., in 1878.	Voted for 1877.
		$ cts.	$ cts.
1	Legislation	131,350 00	131,550 00

SERVICE.	To be now voted.	Voted in 1877.
1. LEGISLATION.	$ cts.	$ cts.
Details.		
Mr. Speaker's salary	1,500 00	1,500 00
Clerk of the House, salary	1,800 00	1,800 00
Clerk, Assistant	1,000 00	1,000 00
Law Clerk	1,000 00	1,000 00
Clerk	600 00	600 00

II.—LEGISLATION.—*Continued,*

SERVICE.	To be now voted.	Voted for 1877.
Details.—Continued.	$ cts.	$ cts.
Librarian	1,200 00	1,200 00
Clerk of the Crown in Chancery	400 00	600 00
Accountant of the House and Stationery Clerk (also Queen's Printer)	400 00	400 00
Sergeant-at-Arms	600 00	600 00
Housekeeper and Chief Messenger, with house, fuel and light	600 00	600 00
Three Messengers	1,350 00	1,350 00
Fireman	400 00	400 00
Night Watchman	450 00	450 00
Sessional Clerks, Writers, Messengers and Pages	8,000 00	8,000 00
Expenses.		
Postages and cost of House Post Office	4,000 00	4,000 00
Stationery, including Printing Paper, Printing and Binding	20,000 00	20,000 00
Printing Bills and Distributing Statutes	3,000 00	3,000 00
Library for Books and Binding	2,800 00	2,800 00
Indemnity to Members, including Mileage	72,600 00	72,600 00
Subscriptions to Newspapers and Periodicals	1,000 00	1,000 00
Repairs and Furniture	2,000 00	2,000 00
Fuel	1,500 00	1,500 00
Gas and other lighting	1,700 00	1,700 00
Water	450 00	450 00
Contingencies	3,000 00	3,000 00
	131,350 00	131,550 00

III.—ADMINISTRATION OF JUSTICE.

To be voted per Statement (A).....$294,960 00.

No. of Vote.	A.	To be voted for 1878.	Voted for 1877.
		$ cts.	$ cts.
1	Court of Chancery	20,345 00	20,145 00
2	Court of Queen's Bench	9,520 00	9,520 00
3	Court of Common Pleas	5,360 00	5,360 00
4	Superior Judges and Court of Appeal	15,610 00	15,610 00
5	Practice and other Courts	4,900 00	4,860 00
6	Criminal Justice	180,200 00	163,200 00
7	Miscellaneous Justice	59,025 00	59,822 50
		294,960 00	278,517 50

SERVICE.	To be voted for 1878.	Voted in 1877.
Details.		
1 Court of Chancery.	$ cts.	$ cts.
Salaries.		
Master	3,000 00	3,000 00
Taxing Officer	1,400 00	1,400 00
Clerk	1,000 00	1,000 00
Junior Clerk	600 00	600 00

III.—ADMINISTRATION OF JUSTICE.—*Continued.*

SERVICE.	To be voted for 1878.	Voted for 1877.
	$ cts.	$ cts.
1. COURT OF CHANCERY.—*Continued.*		
Salaries.—Continued.		
Clerk of Accounts	1,400 00	1,200 00
Registrar	2,100 00	2,100 00
First Assistant Registrar	1,200 00	1,200 00
Second do	1,000 00	1,000 00
Clerk	600 00	600 00
Do in Registrar's Department	500 00	500 00
Do of Records and Writs	1,200 00	1,200 00
Do Records Office	650 00	650 00
Referee in Chambers	2,000 00	2,000 00
Clerk to do	900 00	900 00
Usher of Court	600 00	600 00
Messenger and Housekeeper, with house, fuel and light	400 00	400 00
Expenses.		
Contingencies of the following offices :—		
Judges' Library 200 00		
Referee in Chambers....350 00		
Accountant 225 00		
Master's Office....300 00		
Registrar's Office....720 00		
	1,795 00	1,795 00
2. COURT OF QUEEN'S BENCH.	20,345 00	20,145 00
Salaries.		
Clerk of Crown and Pleas	3,000 00	3,000 00
Senior Clerk	1,400 00	1,400 00
Clerk (including attendance at Court of single Judge)	1,300 00	1,300 00
Junior Clerk	600 00	600 00
Clerk of Process	1,400 00	1,400 00
Assistant to do	500 00	500 00
Housekeeper and Messenger, with house, fuel and light	500 00	500 00
Usher and Crier, do	160 00	160 00
Assistant Messenger	160 00	160 00
Expenses.		
Contingencies, including $100 for Judges' Library	500 00	500 00
	9,520 00	9,520 00
3. COURT OF COMMON PLEAS.		
Salaries.		
Clerk of Crown and Pleas	2,500 00	2,500 00
Senior Clerk	1,400 00	1,400 00
Junior do	1,000 00	1,000 00
Usher and Crier	160 00	160 00
Expenses.		
Contingencies, including $100 for Judges' Library	300 00	300 00
	5,360 00	5,360 00
4. SUPERIOR JUDGES AND COURT OF APPEAL.		
Salaries.		
Allowances granted by 33 Vic., cap. 5, Ont. Statutes	13,000 00	13,000 00
Registrar of Court of Appeal	2,000 00	2,000 00
Usher and Crier	50 00	50 00
Assistant Messenger	160 00	160 00

III.—ADMINISTRATION OF JUSTICE.—*Continued.*

SERVICE.	To be voted for 1878.	Voted for 1877.
4. Superior Judges and Court of Appeal.—*Continued.*	$ cts.	$ cts.
Expenses.		
Law Library	100 00	100 00
Contingencies	300 00	300 00
	15,610 00	15,610 00
5. Practice and other Courts.		
Salaries.		
Clerk of Practice Court	1,800 00	1,800 00
Clerk of Surrogate Court (including expense of assistance)	2,000 00	2,000 00
Clerk of Assizes	1,000 00	1,000 00
Expenses.		
Contingencies of Practice Court 50 00		
do Surrogate Court 20 00		
do Assize Clerk 30 00		
	100 00	60 00
	4,900 00	4,860 00
6. Criminal Justice.		
Crown Counsel Prosecutions	11,200 00	11,200 00
Administration of Criminal Justice	130,000 00	120,000 00
Special Services	4,000 00	2,000 00
To meet payments to witnesses in Criminal cases	20,000 00	20,000 00
To meet balance of unpaid accounts for Administration of Justice	15,000 00	10,000 00
	180,200 00	163,200 00
7. Miscellaneous Justice.		
Deputy Clerks of the Crown and Pleas, salaries	16,000 00	16,000 00
District of Algoma.		
Sheriff's salary	1,400 00	1,400 00
Registrar's salary	800 00	800 00
Clerk of the Peace and District Attorney	800 00	800 00
Clerk of the District Court	500 00	500 00
Administration of Justice	4,000 00	4,000 00
Rents	175 00	1,225 00
	7,675 00	8,725 00
District of Thunder Bay.		
Stipendiary Magistrate, salary	1,200 00	1,200 00
Administration of Justice	3,500 00	3,500 00
	4,700 00	4,700 00
District of Nipissing.		
Stipendiary Magistrate, salary	1,400 00	1,400 00
Administration of Justice	500 00	500 00
	1,900 00	1,900 00
District of Parry Sound.		
Stipendiary Magistrate, salary	1,400 00	1,400 00
Administration of Justice	600 00	600 00
	2,000 00	2,000 00
District of Muskoka.		
Stipendiary Magistrate, salary (his Crown Lands Agency, being discontinued)	1,800 00	1,000 00
Administration of Justice	500 00	500 00
	2,300 00	1,500 00

III.—ADMINISTRATION OF JUSTICE.—*Concluded.*

SERVICE.	To be voted for 1878.	Voted for 1877.
6. MISCELLANEOUS JUSTICE.—*Continued.*		
Provisional County of Haliburton.	$ cts.	$ cts.
Stipendiary Magistrate, salary	1,200 00	1,000 00
Administration of Justice	500 00	500 00
	1,700 00	1,500 00
Provincial Police, at Clifton and Fort Erie.		
Salary of Police Magistrate	1,000 00	1,000 00
Administration of Justice	4,000 00	4,247 50
	5,000 00	5,247 50
Other Services.		
To pay Sheriffs, Criers and Constables in attending Courts of Chancery and County Courts, Deputy Clerks of the Crown and Pleas attending Assizes, and their postages, &c	6,000 00	6,000 00
Seals and other contingencies	300 00	500 00
Registration Books for Muskoka, Parry Sound and Thunder Bay	100 00	200 00
Lighting and heating Osgoode Hall	3,000 00	3,000 00
Furniture, matting, &c. do	300 00	500 00
For employment of Shorthand Reporters of evidence on trials at the Assizes and in Election Courts	7,000 00	7,000 00
Expenses of County Judges in grouped Counties	1,050 00	1,050 00
	17,750 00	18,250 00

IV.—EDUCATION.

To be voted per Statement (A).....$544,715 00.

No. of Vote.	A.	To be voted for 1878.	Voted for 1877.
		$ cts.	$ cts.
1	Public and Separate Schools	240,000 00	240,000 00
2	Inspection of Public and Separate Schools	28,850 00	28,600 00
3	Schools in New and Poor Townships	12,000 00	12,000 00
4	High Schools and Collegiate Institutes	78,800 00	78,000 00
5	Inspection of High Schools and Collegiate Institutes	7,800 00	7,800 00
6	Departmental Examinations	11,400 00	5,850 00
7	Training of Teachers	17,750 00	12,250 00
8	Superannuated Teachers	35,200 00	35,500 00
9	Normal and Model Schools (Toronto)	22,950 00	26,750 00
10	Normal School, Ottawa	11,700 00	13,850 00
11	Educational Museum and Library	3,455 00	3,950 00
	Journal of Education	.....	2,360 00
12	Maps, Apparatus and Library Books	35,000 00	60,000 00
13	Educational Depository	9,335 00	8,505 00
14	Education Department	21,975 00	19,050 00
15	Miscellaneous	8,500 00	5,800 00
		544,715 00	560,265 00

IV.—EDUCATION.——*Continued.*

SERVICE.	To be voted for 1878.	Voted for 1877.
Details.	$ cts.	$ cts.
1.—Public and Separate Schools	240,000 00	240,000 00
2. Inspection of Public and Separate Schools.		
5,100 Public and Separate Schools at $5	25,500 00	25,250 00
Proportion of payments to Inspectors in the Territorial and remote Districts, viz.:—(1) Algoma, (2) Parry Sound, (3) Nipissing, (4) Haliburton, and (5) the northern parts of the Counties of Victoria, Peterborough, Hastings, Addington, and Renfrew	2,500 00	2,500 00
Stationery, postages, printing paper, and incidentals	850 00	850 00
	28,850 00	28,600 00
3. Schools in New and Poor Townships.		
In Organized Townships, proportion	10,000 00	
In Unorganized Townships, in aid	2,000 00	
	12,000 00	12,000 00
4. High Schools and Collegiate Institutes.		
95 existing High Schools, and 8 Collegiate Institutes (103)	72,000 00	72,000 00
2 new High Schools	800 00	
8 Collegiate Institutes, at $750 additional each	6,000 00	6,000 00
	78,800 00	78,000 00
5. Inspection of High Schools and Collegiate Institutes.		
Three Inspectors' salaries, at $2,000	6,000 00	6,000 00
Payment of actual expenses incurred in travelling	900 00	600 00
Do do unpaid in 1877	300 00	
Stationery, printing paper, postages and incidentals	600 00	1,200 00
	7,800 00	7,800 00
6. Departmental Examinations.		
Central Committee of Examiners, 8 in number, comprising the Chairman, 3 High School Inspectors, and 4 Public School Inspectors, for preparing Examination Papers for (1) 1st, 2nd and 3rd Class Public School Teachers and Normal School Students; and (2) High School Entrance and Intermediate; for personally conducting the examination of First Class Certificates and of Normal School Students, and reading and valuing the answers, and also of candidates for 2nd Class Certificates; also for examining and reporting on Library and Prize Books	3,850 00	2,800 00
Do do unpaid in 1877	900 00	
Travelling expenses of non-resident Members	400 00	400 00
20 Sub-Examiners, twice a year, including travelling expenses (6 for Intermediate in 1877)	3,000 00	400 00
Postages, stationery and incidentals	400 00	400 00
Medals for competition—Teachers' Examinations	...	100 00
Revision of Text-books	...	1,000 00
Confidential printing of examination papers—		
(1) Further type, press, and material	600 00	
(2) Ink, fire, light and incidentals	250 00	
(3) Paper for printing; also for certificates, forms and circulars	650 00	750 00
Salary of Printer, $850 (and wages of Pressman and Assistant, as occasion requires, $500)	1,350 00	
	11,400 00	5,850 00

IV.—EDUCATION.—*Continued.*

SERVICE.	To be voted for 1878.	Voted for 1877.
	$ cts.	$ cts.
7. Training of Public School Teachers.		
Travelling expenses of students (say 200) at Toronto and Ottawa Normal Schools, two sessions each	2,000 00	4,000 00
Towards maintenance (say 200)	5,000 00	3,200 00
Towards Public Schools selected as County Model Schools	4,700 00	2,250 00
Additional required to make up full allowance of $100 each to 40 County Model Schools for 1877	2,000 00	
County Teachers' Institutes and Associations	2,500 00	2,500 00
Balance due in 1877 (re-vote in part)	250 00	
Printing paper, stationery, travelling expenses and incidentals	300 00	300 00
Inspection of Model Schools	1,000 00	
	17,750 00	12,250 00
8. Superannuated Public and High School Teachers and Inspectors.		
Annual retiring allowance to 325 Teachers, &c.	32,500 00	32,500 00
Do for 1st and 2nd class Teachers and High School Masters, &c	2,000 00	2,000 00
Do to worn-out Teachers, non-contributors, over 65 years of age	500 00	1,000 00
Medical examination fees, printing paper, and incidentals	200 00	
	35,200 00	35,500 00
9. Normal and Model Schools, Toronto.		
Salaries.		
The Principal	2,000 00	2,000 00
Science Master	1,800 00	1,800 00
Mathematical Master	1,500 00	1,500 00
Writing and Book-keeping Master	1,000 00	900 00
Drawing Master	600 00	600 00
Music Master	500 00	500 00
Teacher of Reading and Elocution	300 00	
Do Domestic Economy of a practical nature	300 00	
Gymnastic Master	300 00	300 00
Head Master of Boys' Model School	1,200 00	1,200 00
First Assistant do	1,000 00	1,000 00
Second do do	800 00	800 00
Third do do	700 00	700 00
Head Mistress of Girls' Model School	1,000 00	1,000 00
First Assistant do	800 00	800 00
Second do do	700 00	700 00
Third do do	650 00	650 00
Clerk of the Normal and Model School	600 00	600 00
Head Gardener and Keeper of Grounds, with house and fuel	410 00	410 00
First Engineer, with fuel and rooms	410 00	410 00
Second do	400 00	400 00
Third do	360 00	360 00
Janitor of Normal School, including scrubbing, washing, &c.	450 00	450 00
Do Boys' Model School	420 00	420 00
Do Girls' do	400 00	400 00
Assistant Gardener	400 00	400 00
Expenses.		
Half cost of stationery and text books (other half paid by the students)	.....	2,500 00
Half cost of maps, apparatus and library books (other half paid out of library, map, and apparatus grant)	.....	550 00
Half cost of prize books for Model School Pupils (other half paid out of library, map and apparatus grant)	.....	250 00
(The above will in future be supplied out of the Depository Branch.)		
Large models of mechanical powers, geological specimens and instruments for vocal music	.....	950 00
Text and reference books for master, and reading room for students	200 00	200 00
Stationery, printing paper, chemicals and supplies	400 00	500 00

IV.—EDUCATION.—*Continued.*

SERVICE.	To be voted for 1878.	Voted for 1877.
	$ cts.	$ cts.
Expenses of grounds, plant and plant-houses	500 00	650 00
Fuel and light	1,750 00	1,750 00
Water and hose pipe	550 00	550 00
Petty repairs, furniture and incidentals	550 00	550 00
	22,950 00	26,750 00
10. Normal School, Ottawa.		
Salaries.		
The Principal	2,000 00	2,000 00
Mathematical Master	1,500 00	1,500 00
Science Master	1,500 00	1,500 00
Writing and Bookkeeping Master	300 00	200 00
Drawing Master	200 00	150 00
Music Master	200 00	150 00
Clerk and Accountant	800 00	800 00
Drill Instructor	250 00	
First Engineer and Gardener	600 00	600 00
Second do and Assistant Gardener	360 00	360 00
Two Labourers on grounds in summer, at $240	480 00	480 00
Janitor	360 00	360 00
Do to pay for scrubbing and cleaning	150 00	150 00
Expenses.		
Half cost of stationery and text books (other half paid by the students)		2,000 00
Half cost of maps, apparatus and library books (other half paid out of library, maps and apparatus grant)		600 00
(The above will in future be paid out of Depository Branch.)		
Text and reference books for masters, and reading-room for students	200 00	200 00
Stationery, printing paper, chemicals and supplies	400 00	400 00
Expenses of grounds (including plants, shrubs, trees, &c.)	400 00	400 00
Fuel and light	1,200 00	1,200 00
Water	300 00	300 00
Petty repairs, furniture and incidentals	500 00	500 00
	11,700 00	13,850 00
11. Educational Museum and Library.		
School furniture, maps and apparatus, and models of school houses	1,500 00	
Historical books relating to various Provinces	100 00	
Specimen text-books for reference	200 00	
Engravings, casts and photographs	100 00	
Frames for do, and fittings	180 00	
Repairs, painting, and restoration of pictures and casts	250 00	3,750 00
Binding Canadian books and pamphlets	200 00	
Reports and books on education	175 00	
Printing paper for catalogues, and incidentals	200 00	
Fire, water and light (proportion)	450 00	
Caretaker	100 00	200 00
	3,155 00	3,950 00
Journal of Education		2,360 00

IV.—EDUCATION.—*Continued.*

SERVICE.	To be voted for 1878.	Voted for 1877.
	$ cts.	$ cts.
12. Maps, Apparatus, Library and Prize Books.		
Purchase of stock of Public and High School text-books	7,000 00	
Do books on the Theory and Practice of Education, for Teachers' Libraries	3,000 00	
Payment of proportion of purchases of Prize and Library Books by School Corporations from Booksellers	5,000 00	60,000 00
Purchase of Maps, Apparatus and Library and Prize Books for supply of Public and High Schools	20,000 00	
	35,000 00	60,000 00
13. Educational Depository.		
Salaries.		
Superintendent of Depository	1,400 00	1,400 00
Cashier	1,000 00	900 00
Despatch Clerk	520 00	520 00
Senior Clerks (4)	1,750 00	1,500 00
Junior Clerks (3, one new)	900 00	420 00
Messenger and Postman	365 00	365 00
Expenses.		
Postages	500 00	500 00
Stationery	500 00	500 00
Fuel, water and light	650 00	650 00
Printing paper for forms and circulars	450 00	450 00
Printing catalogues	350 00	350 00
Packing paper, twine, nails, &c	350 00	350 00
Cases, shelving, fixtures and painting	300 00	300 00
Furnishings, incidentals and repairs	300 00	300 00
	9,335 00	8,505 00
14. Education Department.		
Salaries.		
Minister of Education	4,500 00	4,500 00
Deputy Minister	3,000 00	2,800 00
Secretary	2,000 00	1,800 00
Chief Clerk and Accountant	1,200 00	1,200 00
Clerk	1,000 00	1,000 00
Do	900 00	900 00
Do	1,100 00	
Do	550 00	
Do	700 00	
Do	550 00	
Do (new)	600 00	
Do (new)	575 00	3,600 00
Junior Clerk	550 00	
Do	400 00	
Do	350 00	
Do	300 00	
Caretaker, including all allowances for cleaning, washing and scrubbing	500 00	
Expenses.		
Postages	550 00	550 00
Printing paper for circulars and blanks	600 00	600 00
Fuel and light	500 00	500 00
Office stationery and account books	400 00	400 00
Books on education, periodicals, papers, law and other reports	200 00	200 00
Law appeal cases	200 00	250 00
Office furniture and fixtures, petty repairs and incidentals	250 00	450 00
Yearly and half-yearly blank forms for trustees	300 00	300 00
Travelling and other expenses in necessary inquiries under Revised Statutes, Title 15, c. 203, s. 5, sub-s. 23	200 00	
	21,975 00	19,050 00

IV.—EDUCATION.—*Concluded.*

SERVICE.	To be voted for 1878.	Voted for 1878.
	$ cts.	$ cts.
15. MISCELLANEOUS.		
Queen's Printer, for Minister's Annual Report	1,500 00	1,500 00
Do 6,000 Consolidated Acts and Regulations	2,550 00	300 00
Do 13,000 Public and High School Registers (3 kinds)	3,750 00	
Compendium of School Act and Regulations, for revision	200 00	
Six months' salary of temporary Clerk in place of Clerk of Correspondence, absent on sick leave	500 00	
	8,500 00	5,800 00

V.—PUBLIC INSTITUTIONS, MAINTENANCE.

To be voted per Statement (A).....$507,296 00

No. of Vote.	A.	To be voted for 1878.	Voted for 1877.
		$ cts.	$ cts.
1	Asylum for the Insane, Toronto	88,090 00	87,048 00
2	Do London	97,830 00	86,800 00
3	Do Kingston	60,852 00	52,195 00
4	Do Hamilton	54,649 00	33,574 00
5	Do Orillia	22,516 00	22,518 00
6	Provincial Reformatory, Penetanguishene	26,720 60	23,390 00
7	Central Prison	86,115 00	47,890 00
8	Institution for the Deaf and Dumb, Belleville	37,859 00	35,683 00
9	Do Blind, Brantford	28,015 00	25,995 00
10	School of Agriculture	21,970 00	17,360 00
11	Do Practical Science	2,680 00	5,600 00
		507,296 00	438,053 00

SERVICE.			To be voted for 1878.	Voted for 1877.
			$ cts.	$ cts.
1. ASYLUM FOR THE INSANE, TORONTO.				
(For 670 Patients; 660 in 1877.)				
Salaries.	No. of officers and employees.			
Medical Superintendent	1	.....	2,000 00	2,000 00
Assistant do	1	.....	1,000 00	1,000 00
Second Assistant Physician (2 clinicals in 1877)	1	.....	800 00	600 00
Bursar	1	.....	1,400 00	1,400 00
Bursar's clerk	1	.....	500 00	.....
Steward	1	.....	700 00	700 00
Storekeeper	1	.....	600 00	600 00
Engineer	1	.....	740 00	740 00
Assistant Engineer	1	.....	432 00	432 00
Stokers	3	.....	756 00	504 00

V.—PUBLIC INSTITUTIONS, MAINTENANCE.—*Continued.*

SERVICE.			To be voted for 1878.	Voted for 1877.
			$ cts.	$ cts.
1. ASYLUM FOR THE INSANE, TORONTO.—*Continued.*				
Salaries.—Continued.				
Carpenters	2	.....	1,050 00	1,050 00
Gardener	1	.....	264 00	216 00
Assistant Gardener	1	.....	216 00	216 00
Porter or Messenger	1	.....	240 00	240 00
Baker	1	.....	350 00	350 00
Tailor	1	.....	400 00	400 00
Farmer and Assistant	2	.....	480 00	480 00
Teamster	1	.....	216 00	.....
Night Watchers	3	.....	720 00	720 00
Chief Attendants	7	.....	1,848 00	1,848 00
Ordinary Male Attendants	17	.....	3,624 00	3,552 00
Females.				
Matron	1	.....	400 00	400 00
Assistant Matron	1	.....	192 00	192 00
Chief Attendants	6	.....	672 60	672 00
Ordinary Attendants	17	.....	1,656 00	1,656 00
Night Attendants	3	.....	360 00	360 00
Cooks	7	.....	744 00	948 00
Laundresses	5	.....	504 00	696 00
Housemaids	5	.....	468 00	468 00
Seamstress	1	.....	108 00	108 00
	95		23,440 00	22,548 00
Expenses.				
Medicine and medical comforts			350 00	350 00
Fuel			11,500 00	11,500 00
Butchers' meat, fish and fowl			12,500 00	12,500 00
Flour			8,000 00	8,000 00
Butter			4,500 00	4,500 00
Beer, wine and spirits			1,850 00	1,850 00
Gas and oil			2,750 00	2,300 00
Groceries			8,500 00	8,000 00
Fruit and vegetables			750 00	750 00
Bedding, clothing and shoes			5,500 00	6,000 00
Furniture and furnishings			1,500 00	1,500 00
Laundry, soap and cleaning			1,200 00	1,500 00
Farm, feed and fodder			1,500 00	1,500 00
Miscellaneous			1,500 00	1,500 00
Repairs and alterations			2,000 00	2,000 00
Printing, postage and stationery			750 00	750 00
			88,090 00	87,048 00
2. ASYLUM FOR THE INSANE, LONDON.				
(*For 730 Patients, 650 in 1877.*)				
Salaries.	No. of officers and employees.			
Medical Superintendent	1	.....	2,000 00	2,000 00
Assistant Physician	1	.....	1,000 00	1,000 00
Second Assistant do	1	.....	800 00	600 00
Bursar	1	.....	1,400 00	1,200 00
Steward	1	.....	750 00	600 00
Engineer	1	.....	740 00	740 00
Assistant ditto	1	.....	400 00	.....
Bricklayer and Plasterer	1	.....	500 00	550 00
Stokers	4	.....	1,104 00	1,104 00
Carpenters	2	.....	1,050 00	1,050 00
Gardener	1	.....	400 00	400 00
Assistant Gardener	1	.....	240 00	240 00

V.—PUBLIC INSTITUTIONS, MAINTENANCE.—*Continued.*

SERVICE.			To be voted for 1878.	Voted for 1877.
			$ cts.	$ cts.
2. ASYLUM FOR THE INSANE, LONDON.—*Continued.*				
Salaries.—Continued.				
Butcher and Jobber	1	.....	216 00	216 00
Porter or Messenger	1	.....	192 00	192 00
Baker	1	.....	360 00	360 00
Assistant Baker	1	.....	216 00	192 00
Tailor	1	.....	400 00	264 00
Farmer	1	.....	400 00	400 00
Ploughmen	2	.....	672 00	672 00
Night Watchmen	3	.....	720 00	480 00
Chief Attendants	3	.....	900 00	1,356 00
Ordinary Male Attendants	19	.....	4,056 00	3,576 00
Cowman	1	.....	216 00	216 00
Females.				
Matron	1	.....	400 00	400 00
Assistant ditto	1	.....	200 00	.....
Chief Attendant	1	.....	250 00	540 00
Ordinary Female Attendants	20	.....	2,472 00	2,160 00
Night Attendants	3	.....	360 00	240 00
Cooks	4	.....	564 00	540 00
Laundresses	4	.....	456 00	456 00
Housemaids	7	.....	696 00	696 00
Dairymaid	1	.....	120 00	120 00
Seamstress	1	.....	120 00	240 00
Porteress	1	.....	120 00	.....
Salaries and wages for 6 months of the year for 16 attendants and servants on opening of Refractory Asylum on 1st July, 1878.	..	.....	1,290 00	.....
	94		25,780 00	22,800 00
Expenses.				
Medicine and medical comforts			450 00	350 00
Fuel			12,000 00	11,500 00
Butchers' meat, fish and fowl			14,000 00	12,500 00
Flour			8,000 00	6,500 00
Butter			4,500 00	4,000 00
Beer, wine and spirits			1,850 00	1,850 00
Gas and oil			3,000 00	2,300 00
Groceries			9,500 00	7,500 00
Fruit and vegetables			1,000 00	1,000 00
Bedding, clothing and shoes			8,000 00	7,000 00
Furniture and furnishings			1,500 00	1,500 00
Laundry, soap and cleaning			2,000 00	1,750 00
Farm, feed and fodder			2,000 00	2,000 00
Miscellaneous			1,500 00	1,500 00
Repairs and alterations			2,000 00	2,000 00
Printing, Postages and Stationery			750 00	750 00
			97,830 00	86,800 00
3. ASYLUM FOR THE INSANE, KINGSTON.				
(*For 430 Patients, 365 in 1877.*)				
Salaries.	No. of officers and employees.			
Medical Superintendent	1	.....	2,000 00	
Assistant Physician	1	.....	1,000 00	
Bursar	1	.....	1,200 00	
Steward	1	.....	500 00	
Storekeeper	1	.....	500 00	
Engineer	1	.....	700 00	
Assistant Engineer	1	.....	400 00	
Carpenter	1	.....	450 00	

V.—PUBLIC INSTITUTIONS, MAINTENANCE.—*Continued.*

SERVICE.		To be voted for 1878.	Voted for 1877.
		$ cts.	$ cts.
3. ASYLUM FOR THE INSANE, KINGSTON.—*Continued.*			
Salaries.—Continued.			
Baker	1	400 00	
Cook	1	360 00	
Farmer	1	400 00	
Gardener	1	400 00	
Ploughman	1	360 00	
Porter and Messenger	1	240 00	
Night Watch	1	360 00	
Attendants (who are also tradesmen)	5	1,800 00	
Ordinary Attendants	14	4,480 00	
	34		
Females.			
Matron	1	400 00	
Assistant Matron	1	200 00	
Attendants	10	1,200 00	
Night Watch	1	120 00	
Laundresses	2	264 00	
Domestics	2	168 00	
	51	17,902 00	
Expenses.			
Medicines		250 00	
Butcher's meat, fish, fowl, &c		8,000 00	
Butter		2,750 00	
Flour		6,000 00	
Fuel		8,000 00	
Gas and oil		1,000 00	
Groceries		5,000 00	
Fruit and vegetables		2,000 00	
Milk		1,000 00	
Bedding, clothing, and shoes		4,000 00	
Furniture and furnishings		1,000 00	
Laundry, soap and cleaning		600 00	
Printing, postage and stationery		600 00	
Farm, feed and fodder		1,250 00	
Repairs		500 00	
Miscellaneous		1,000 00	
		60,852 00	52,195 00
4. ASYLUM FOR THE INSANE, HAMILTON.			
(*For 220 Patients, 210 in 1877.*)			
Salaries.	No. of officers and employees.		
Medical Superintendent	1	1,600 00	1,600 00
Assistant Physician	1	800 00	800 00
Bursar	1	800 00	800 00
Engineer	1	600 00	600 00
Assistant Engineer	1	240 00	240 00
Stoker and farm hand	1	240 00	.....
Carpenter	1	500 00	500 00
Gardener and Farmer	1	400 00	400 00
Messenger and Porter	1	200 00	200 00
Chief Attendant	1	300 00	300 00
Night Watch	1	365 00	240 00
Ordinary Attendants	5	1,200 00	1,200 00
Extra assistance	..	.....	240 00

Maintenance of Ontario Patients at Rockwood Asylum, for food, clothing, medical attendance, &c., &c., for 365 patients, at $143 per annum each, voted for 1877, $52,195.00.

V.—PUBLIC INSTITUTIONS, MAINTENANCE.—*Continued.*

SERVICE.		To be voted for 1878.	Voted for 1877.
		$ cts.	$ cts.
ASYLUM FOR THE INSANE, HAMILTON.—*Continued.*			
Salaries.—Continued.			
Females.			
Matron	1	300 00	300 00
Chief Attendant	1	200 00	200 00
Ordinary Female Attendants	8	960 00	960 00
Night Attendant	1	120 00	120 00
Cooks	2	264 00	264 00
Laundresses	3	384 00	384 00
Housemaids	4	432 00	432 00
Seamstress and Tailoress	1	144 00	144 00
	37	10,049 00	9,924 00
Expenses.			
Medicine and medical comforts		100 00	100 00
Beer, wine and spirits		300 00	500 00
Fuel		3,500 00	3,000 00
Butchers' meat, fish and fowl		3,750 00	4,000 00
Flour, bread, &c		2,750 00	1,600 00
Butter		1,500 00	1,500 00
Milk		1,000 00	.....
Gas and oil		900 00	1,000 00
Groceries		3,500 00	4,000 00
Fruit and vegetables		1,000 00	1,200 00
Bedding, clothing and shoes		2,000 00	2,200 00
Laundry, soap and cleaning		500 00	750 00
Furniture and furnishings		500 00	500 00
Farm, feed and fodder		750 00	750 00
Repairs and alterations		500 00	500 00
Miscellaneous		1,200 00	1,200 00
Water supply		500 00	500 00
Printing, postage and stationery		350 00	350 00
		34,649 00	33,574 00
5. ASYLUM FOR IDIOTS, ORILLIA.			
(*For* 150 *Patients.*)			
Salaries.	No. of officers and employees.		
Medical Superintendent	1	1,600 00	1,600 00
Bursar	1	800 00	800 00
Engineer	1	600 00	600 00
Assistant Engineer	1	340 00	240 00
Gardener	1	375 00	300 00
Chief Attendant	1	300 00	300 00
Night Watch	4	340 00	240 00
Ordinary Male Attendants	1	960 00	960 00
Messenger and Porter	1	240 00	240 00
Stable-keeper		120 00	.....
Females.			
Matron	1	300 00	300 00
Chief Attendant	1	225 00	200 00
Ordinary Female Attendants	4	480 00	480 00
Night Attendant	1	120 00	120 00
Cooks	2	252 00	252 00
Laundresses	2	252 00	252 00

V.—PUBLIC INSTITUTIONS, MAINTENANCE.—*Continued.*

SERVICE.		To be voted for 1878.	Voted for 1877.
5. Asylum for Idiots, Orillia.—*Continued.*		$ cts.	$ cts.
Salaries—Continued.			
Housemaids	4	384 00	384 00
Seamstress	2	228 00	200 00
Extra assistance	..	150 00	250 00
	30	8,066 00	7,718 00
Expenses.			
Medicine and medical comforts		200 00	200 00
Fuel		1,500 00	2,000 00
Butchers' meat, fish and fowl		2,709 00	2,500 00
Flour, bread, &c		1,800 00	1,500 00
Butter		1,000 00	1,200 00
Gas and oil		300 00	500 00
Groceries		2,000 00	2,000 00
Fruit and vegetables		600 00	600 00
Bedding, clothing and shoes		1,500 00	1,500 00
Laundry, soap and cleaning		450 00	400 00
Furniture and furnishings		400 00	400 00
Farm, feed and fodder		500 00	400 00
Repairs		400 00	400 00
Miscellaneous		600 00	600 00
Milk		200 00	600 00
Printing, postage and stationery		300 00	....
		22,516 00	22,518 00
6. Provincial Reformatory, Penetanguishene.			
(*For 230 Inmates, 190 in 1877.*)			
Salaries.	No. of officers and employees.		
Warden	1	1,600 00	1,600 00
Bursar	1	850 00	850 00
Surgeon	1	500 00	500 00
Chaplains	2	800 00	800 00
School Teachers	2	1,000 00	1,000 00
Chief Guard and Steward	1	600 00	600 00
Superintendent of New Industries	1	550 00	....
Carpenter Instructor	1	500 00	400 00
Cabinetmaker Instructor	1	500 00	....
Instructors in Cooper, Shoe and Tailor shops	3	1,200 00	1,200 00
Farmer	1	400 00	400 00
Ordinary Guards (against 5 Guards, Drill Instructor and extra assistance	7	2,520 00	2,300 00
Night Guards	3	1,080 00	720 00
Stable and Gatekeepers	2	520 00	520 00
	27	12,620 00	10,890 00
Expenses.			
Rations		6,000 00	5,500 00
Clothing		3,000 00	2,800 00
Bedding		850 00	700 00
Farm, farm stock and stables		700 00	500 00
Hospital		150 00	100 00
Library and schools		500 00	500 00
Fuel		350 00	....
Cleaning, light and laundry		450 00	450 00
Furniture, tools and shop fixtures		600 00	500 00

V.—PUBLIC INSTITUTIONS, MAINTENANCE.—*Continued.*

SERVICE.			To be voted for 1878.	Voted for 1877.
			$ cts.	$ cts.
6. Provincial Reformatory, Penetanguishene—*Continued.*				
Repairs, ordinary			500 00	500 00
Incidentals			750 00	700 00
Postage and Stationery			250 00	250 00
			26,720 00	23,390 00
7. Central Prison.				
(*350 Prisoners,336 in 1877.*)				
Salaries.	No. of officers and employees.			
Warden	1		2,000 00	2,000 00
Deputy Warden (Chief and Depnty Chief Guard in 1877)	1		1,300 00	1,400 00
Bursar	1		1,200 00	1,200 00
Physician	1		1,000 00	1,000 00
Steward and Storekeeper	1		750 00	600 00
Prison Bailiff	1		800 00	800 00
Guards	17		6,800 00	8,800 00
Hospital Guard	1		400 00	
Engineer	1		740 00	740 00
Baker and Cook			600 00	600 00
	26		15,590 00	17,140 00
Expenses.				
Hospital expenses and medicine			300 00	200 00
Butchers' meat and fish			7,000 00	7,000 00
Flour, bread and meal			5,500 00	5,000 00
Groceries			5,000 00	4,000 00
Bedding, clothing and shoes			5,500 00	5,500 00
Fuel			5,000 00	3,500 00
Gas and oil			1,250 00	1,500 00
Laundry, soap and cleaning			750 00	750 00
Stationery, advertising, printing and postage			600 00	400 00
Library, and school lectures			400 00	400 00
Furniture and furnishings			500 00	500 00
Stable forage, &c			300 00	500 00
Grounds, garden, &c			500 00	
Repairs, &c			250 00	500 00
Unenumerated			800 00	1,000 00
			49,240 00	47,890 00
Industrial Department.				
Superintendent of Industries	1		2,000 00	
Accountant	1		1,000 00	
Shoemaker	1		500 00	
Tailor	1		400 00	
Foremen and Instructors	10		6,975 00	
Engineer	1		600 00	
Night Watch and Stoker	1		400 00	
Material			25,000 00	
	16		36,875 00	
8. Institution for the Deaf and Dumb, Belleville.				
(*For 250 Pupils- 220 in 1877.*)				
Salaries.	No. of officers and employees.			
Principal	1		1,800 00	1,800 00
Physician	1		500 00	500 00
Bursar	1		800 00	800 00
Matron	1		300 00	300 00
Teachers	13		8,100 00	7,300 00

V.—PUBLIC INSTITUTIONS, MAINTENANCE.—*Continued.*

SERVICE.		To be voted for 1878.	To be voted for 1877.
8. INSTITUTION OF THE DEAF AND DUMB, BELLEVILLE.—*Continued.*		$ cts.	$ cts.
Salaries.—Continued.	No. of officers and employees.		
Visitors' attendant and Telegraph operator	1	150 00	100 00
Housekeeper	1	200 00	200 00
Engineer	1	600 00	600 00
Fireman	1	240 00	240 00
Farmer	1	400 00	400 00
Teamster	1	228 00	228 00
Gardener	1	240 00	240 00
Baker	1	400 00	400 00
Night Watchman	1	240 00	240 00
Carpenter and Assistant	2	650 00	650 00
Shoemaker	1	500 00	500 00
Messenger	1	96 00	84 00
Cook	1	156 00	132 00
Maids, Laundresses, Cook's Assistant, and Boys' Nurse	11	1,044 00	1,104 00
Supervisor of Boys	1	90 00	90 00
	43	16,734 00	15,908 00
Expenses.			
Medicine and medical comforts		125 00	125 00
Butchers' meat, fish and fowl		5,250 00	5,000 00
Flour		2,250 00	2,000 00
Butter		1,750 00	1,500 00
Groceries		2,750 00	2,300 00
Fruit and vegetables		750 00	600 00
Bedding, clothing and shoes		400 00	400 00
Fuel		3,000 00	3,000 00
Gas and oil		1,200 00	1,200 00
Laundry, soap and cleaning		500 00	500 00
Furniture and furnishing		500 00	500 00
Farm, feed and fodder		600 00	600 00
Repairs and alterations		500 00	500 00
Advertising, printing, stationery and postage		400 00	400 00
Books, apparatus and appliances		400 00	400 00
Unenumerated		750 00	750 00
		37,859 00	35,683 00
9. INSTITUTION FOR THE BLIND, BRANTFORD.			
(*For* 150 *Pupils*—140 *in* 1877.)			
Salaries.	No. of officers and employees.		
Principal	1	1,600 00	1,600 00
Physician	1	400 00	400 00
Bursar	1	800 00	800 00
Matron	1	300 00	300 00
Teachers	7	4,300 00	3,700 00
Trade Instructor	1	1,000 00	1,000 00
Visitor's Attendant	1	120 00	120 00
Engineer	1	600 00	600 00
Fireman	1	288 00	240 00
Gardener	1	360 00	400 00
Teamster	1	240 00	288 00
Porter	1	216 00	216 00
Cook and Baker	2	504 00	504 00
Cook's Assistant	1	120 00	.....
Maids	8	804 00	804 00
Laundress	1	144 00	144 00
Laundress' Assistant	2	204 00	204 00
Nurses	2	240 00	240 00
Night Watchman and Carpenter	1	400 00	360 00
Temporary assistance	..	100 00	100 00
	35	12,740 00	12,020 00

V.—PUBLIC INSTITUTIONS, MAINTENANCE.—*Continued.*

SERVICE.			To be voted for 1878.	Voted for 1877.
			$ cts.	$ cts.
'9. INSTITUTION FOR THE BLIND, BRANTFORD.—*Continued.*				
Expenses.				
Medicine and medical comforts			75 00	75 00
Butchers' meat, fish and fowl			3,000 00	2,800 00
Flour, bread, &c.			1,200 00	1,000 00
Butter			1,000 00	800 00
General groceries			2,000 00	1,800 00
Fruit and vegetables			300 00	250 00
Bedding, clothing and shoes			300 00	300 00
Fuel			3,000 00	3,000 00
Gas, oil and candles			1,000 00	800 00
Laundry, soap and cleaning			300 00	300 00
Furniture and furnishing			500 00	400 00
Farm, feed and fodder			600 00	600 00
Repairs and alterations			500 00	400 00
Advertising, printing, stationery and postage			500 00	500 00
Books, apparatus and appliances			400 00	400 00
Unenumerated			600 00	550 00
			28,015 00	25,995 00
10. SCHOOL OF AGRICULTURE.				
(*For 85 Pupils—40 in 1877.*)				
Salaries.	No. of officers and employees.			
President	1		2,000 00	1,500 00
Professor of Agriculture and Farm Superintendent	1		2,000 00	2,000 00
Professor of Chemistry	1		1,000 00	1,000 00
Professor of Veterinary Science and Practitioner	1		600 00	600 00
Bursar	1		800 00	.....
Physician	1		300 00	300 00
Farm Foreman	1		600 00	
Gardener	1		600 00	1,600 00
Carpenter	1		600 00	
Matron	1		300 00	300 00
Kitchen, dining room and housemaids (4 in 1877)	7		750 00	420 00
Laundresses (1 in 1877)	2		240 00	120 00
Dairymaid	1		120 00	120 00
Engineer	1		400 00	400 00
Assistant do for 6 months	1		150 00	100 00
Messenger	1		150 00	100 00
Temporary assistance			100 00	.....
Bonus to pupils			.....	800 00
	23		10,710 00	9,360 00
Expenses.				
Medicines and medical comforts			60 00	50 00
Meat, fish and fowl			2,600 00	1,500 00
Bread and biscuit			1,200 00	600 00
Groceries and butter			2,600 00	1,500 00
Fuel			1,600 00	1,200 00
Light			300 00	200 00
Laundry, soap and cleaning			200 00	150 00
Furniture and furnishing			400 00	250 00
Repairs and alterations			400 00	350 00
Maintenance of chemicals			100 00	100 00
Advertising, postage and stationery			600 00	600 00
Experiments			600 00	600 00
Unenumerated			600 00	300 00
Statistical Bureau (transfer to Department of Agriculture)			.....	600 00
			21,970 00	17,360 00

V.—PUBLIC INSTITUTIONS.—*Concluded.*

SERVICE.	To be voted for 1878.	Voted in 1877.
	$ cts.	$ cts.
11. School of Practical Science.		
Salaries.		
Professor in Engineering	600 00	1,200 00
Assistant in Chemistry	500 00	1,200 00
Drawing	.....	800 00
Assistant in Natural Philosophy	.....	600 00
Expenses.		
Chemicals and other incidentals in the different branches	500 00	200 00
Gas	50 00	300 00
Fuel	400 00	400 00
Water	80 00	200 00
Ordinary repairs	100 00	100 00
Attendant	450 00	600 00
	2,680 00	5,600 00

VI.—IMMIGRATION.

To be voted per Statement (A) ..... $37,500 00.

No. of Vote.	A.	To be voted for 1878.	Voted for 1877.
		$ cts.	$ cts.
1	Agencies in Europe	7,800 00	7,800 00
2	Agencies in Ontario	2,400 00	2,400 00
3	Dominion Government, to meet proportion of charges for forwarding Immigrants to Ontario	9,500 00	10,000 00
4	*Do do Balance due on account for previous years*	.....	11,637 42
5	Carriage of Immigrants in Ontario, including maintenance	5,000 00	5,000 00
6	Provisions for same, including medical attendance	5,500 00	5,500 00
7	Assistance by way of payments in reduction of passage money to selected Emigrants, and specially consigned to Ontario	6,000 00	10,000 00
8	Inspection (travelling expenses)	500 00	.....
9	Contingencies	800 00	800 00
		37,500 00	53,137 42

VI.—IMMIGRATION.—*Continued.*

SERVICE.	To be voted for 1878.	Voted for 1877.
	$ cts.	$ cts.
Details.		
1. AGENCIES IN EUROPE.		
Agent in London, including all his expenses	2,000 00	2,000 00
Dominion Government, proportion payable to it for rent, taxes, printing and advertising, and for service by its Agents, and for general office work and contingencies, under agreement with the Province, approved by Resolution of the Legislative Assembly, 20th November, 1874	5,500 00	5,500 00
Contingencies	300 00	300 00
	7,800 00	7,800 00
2. AGENCIES IN ONTARIO.		
Agent forwarding Immigrants from Quebec to Agencies in Ontario	1,000 00	1,000 00
Allowance for Interpreter and Police at Toronto	400 00	600 00
In Muskoka and outlying Districts, 4 Local Agents at $100 each	100 00	400 00
Travelling expenses of Agent	600 00	400 00
	2,400 00	2,400 00

VII.—AGRICULTURE, ARTS, LITERARY AND SCIENTIFIC INSTITUTIONS.

To be voted per Statement (A).....$103,450 00.

No. of Vote.	A	To be voted for 1878.	Voted for 1877.
		$ cts.	$ cts.
	AGRICULTURE.		
1	Electoral Division Societies, 81 at $700	56,700 00	56,700 00
2	Do 1 at 550	550 00	550 00
3	Do 6 at 350	2,100 00	2,100 00
4	Do Outlying Districts	300 00	300 00
5	Fruit Growers' Association	1,000 00	1,000 00
6	Entomological Society	750 00	750 00
7	Dairymen's Associations	2,000 00	2,000 00
8	Agricultural Association	10,000 00	10,000 00
9	Establishment of Statistical Bureau	1,000 00	.....
10	Poultry Associations	600 00	600 00
11	For sundry services in connection with Agriculture and Arts—such as investigations of disease in animals and crops, and of ravages of insects; printing reports and for agricultural instruction, dairy products, and other charges not otherwise provided for	2,000 00	2,000 00
		77,000 00	76,000 00

VII.—AGRICULTURE, ARTS, LITERARY AND SCIENTIFIC INSTITUTIONS.—*Continued.*

No. of Vote.	A.	To be voted for 1878.	Voted for 1877.
		$ cts.	$ cts.
	ARTS.		
11	Mechanics' Institutes	23,000 00	23,000 00
12	Art Union	500 00	500 00
13	Grant towards establishing a School of Art and Design	500 00	500 00
14	Grant in aid of maintenance of School of Art and Design	600 00	600 00
		24,600 00	24,600 00
	LIBRARY.		
15	Aid to Canadian Institute, Toronto	750 00	750 00
16	Do Institut Canadien, Ottawa	300 00	300 00
17	Do Athenæum, Ottawa	300 00	300 00
		1 350 00	1,350 00
	SCIENTIFIC.		
18	To promote scientific research	500 00	500 00
	Totals	103,450 00	102,450 00

VIII.—HOSPITALS AND CHARITIES.

To be voted per Statement (A).....$66,638 12.

No. of Vote.	A.	To be voted for 1878.	Voted for 1877.
		$ cts.	$ cts.
	(Upon the terms and conditions of Statute 37 Vic., ch. 33.)		
	Details.		
1	For Hospitals and Institutions mentioned in Schedule "A" of Statute	43,055 29	40,842 21
2	For Institutions in Schedule "B" of Statute	12,781 20	12,395 55
3	For do in Schedule "C" of Statute	10,801 63	11,317 77
		66,638 12	64,555 53

IX.—MISCELLANEOUS EXPENDITURE.

To be voted per Statement (A).....$55,447 50.

No. of Vote.	A.	To be voted for 1878.	Voted for 1877.
		$ cts.	$ cts.
1	*License Law—towards expenses in municipalities where "Temperance Act of 1864" is in force*	.....	2,000 00
2	To cover expenses of collection of revenue for law stamps and licenses ..	1,500 00	2,500 00
3	To cover expenses in connection with municipalities and other funds	500 00	500 00
4	To provide for expenses attending the settlement of the Municipal Loan Fund debt and surplus schemes	200 00	600 00
5	To provide for expenses *re* Ontario and Quebec Settlement (re-vote in part)	4,000 00	4,000 00
6	Expenses *re* International Exhibitions	400 00	4,000 00
7	To provide for expenses *re* Northern and Western boundaries (re-vote in part)	4,000 00	4,000 00
8	Marriage Licenses, printing and incidentals	200 00	400 00
9	Inspection of Railways	500 00	500 00
10	Ontario Rifle Association	600 00	600 00
11	Insurance on public buildings and furniture	11,315 00	2,200 00
12	Consolidation of Statute Law	5,000 00	35,000 00
13	*Do do (for advance on type)*	.....	7,000 00
14	Expenses of elections	2,000 00	2,000 00
15	Do contested elections	1,000 00	1,000 00
16	County Court Judges, for expenses of revision of voters' lists for 1878....	1,000 00	3,000 00
17	To cover gratuities to officers whose services may be dispensed with	5,000 00	12,474 16
	Allowance to late Superintendent of Education	4,000 00	
18	*For repairs and care of Brock's Monument*	.....	400 00
19	Allowances to Counties under provisions of 30 Vic. Cap. 31 :—		
	County of Haldimand.....$6,000 00		
	Do Oxford..... 2,232 50		
	Do Halton 6,000 00		
		14,232 50	
		55,447 50	82,174 16

X.—PUBLIC BUILDINGS.

To be voted per Statement (A.).....$318,686 56.

No. of Vote.	A.	To be voted for 1878.	Voted for 1877.
		$ cts.	$ cts.
1	Asylum for the Insane, Toronto	7,887 40	27,075 00
2	do London	67,605 30	88,840 00
3	do Hamilton	105,356 00	103,950 00
4	do Kingston	32,445 64	
5	Asylum for Idiots, Orillia	10,485 28	6,732 14
6	Provincial Reformatory, Penetanguishene	8,000 00	2,900 00
7	Central Prison, Toronto	4,755 50	15,250 00
8	Deaf and Dumb Institute	17,831 44	28,355 00
9	Blind Institute	18,220 00	24,025 00
10	School of Agriculture	14,500 00	34,800 00
11	Education Department and Normal School, Toronto	3,000 00	4,800 00
12	Normal School, Ottawa	2,000 00	1,200 00
13	Osgoode Hall	3,000 00	7,000 00
14	Government House	4,000 00	10,000 00
15	Parliament Buildings	2,500 00	2,500 00
16	Algoma District	8,500 00	3,000 00
17	Thunder Bay do	2,000 00	4,400 00
18	Nipissing do	200 00	200 00
19	Muskoka do	3,200 00	600 00
20	Parry Sound do	3,200 00	100 00
		318,686 56	365,727 14
	1 Re-votes included in above	110,135 28	2,000 00
	2 Expenditure on Capital Account (new)	198,851 28	329,927 14
	3 do for Repairs	9,700 00	33,800 00
		318,686 56	365,727 14

X.—PUBLIC BUILDINGS,—*Continued.*

SERVICE.	To be voted for 1878.	—
Details.	$ cts.	$ cts.
1. Asylum for the Insane, Toronto.		
Re-vote of unexpended balance of estimated cost of new buildings, additions, etc., as sanctioned by last year's vote	3,500 00	
Furniture and furnishings for Medical Superintendent's house and two new paying wards, new boiler and washers for laundry, range for kitchen, etc.	4,387 40	
		7,887 40
2. Asylum for the Insane, London.		
Balance of cost of new buildings, additions, etc., as sanctioned by last year's vote, (including re-vote of $22,500 being the unexpended balance of last year's appropriation)	52,500 00	
Furniture and furnishings for new refractory-wards and cottages for chronics—260 patients—2 new heating boilers, laundry appliances, material, etc.	15,105 30	
		67,605 30
3. Asylum for the Insane, Hamilton.		
Balance of cost of new buildings, additions, etc., as sanctioned by last year's vote, (including re-vote of $52,000 being the unexpended balance of last year's appropriation)	87,000 00	
Additions to and improvements of drainage	10,000 00	
Furniture and furnishings for two new wings, rear extension, and Medical Superintendent's house	8,356 00	
		105,356 00
4. Asylum for the Insane, Kingston.		
Gas-house and apparatus, improvement to water supply, and completion of laundry, carpenter's shop, &c.	11,000 00	
Furniture, furnishings and chattels in the Asylum, when taken over from the Dominion, value as per award	16,700 64	
Additional furniture and furnishings to replace worn-out articles, two new heating boilers, laundry furnishings, etc.	4,745 00	
		32,445 64
5. Asylum for Idiots, Orillia.		
Additions, gas apparatus, etc , re-vote	2,000 00	
Fence around Asylum property and improvement of grounds, etc.	3,000 00	
To pay for lands, as per award	4,700 00	
Re-vote of furnishing appropriation of 1877	335 28	
Ornamentation, planting, road construction, etc.	450 00	
		10,485 28
6. Provincial Reformatory, Penetanguishene.		
Materials for two small cottages (work to be done by prison labour)	3,000 00	
Machinery for new industries, furniture and furnishings for additional inmates, etc.	5,000 00	
		8,000 00
7. Central Prison, Toronto.		
Repairs to laundry	600 00	
Furniture and furnishings for hospital and for dormitories, and materials for building, etc., to be done by prison labour	4,155 50	
		4,755 50
8. Deaf and Dumb Institute.		
Re-vote of unexpended balance of estimated cost of new buildings, additions, etc., as sanctioned by last year's vote	7,300 00	
Steam heating apparatus, etc	7,000 00	
Furniture and furnishings for new dormitories, Principal's house, material, etc.	3,531 44	
		17,831 44

X.—PUBLIC BUILDINGS.—*Continued.*

SERVICE.	To be voted for 1878.	—
	$ cts.	$ cts.
9. Blind Institute.		
Balance of cost of additions, etc., as sanctioned by last year's vote (including a re-vote of $7,500, being the unexpended balance of last year's appropriation	14,500 00	
Root and ice houses		
Furniture and furnishings for new Wing, materials, etc	3,720 00	
		18,220 00
10. School of Agriculture.		
Re-vote of unexpended balance of cost of new buildings, additions, etc., as sanctioned by last year's vote	5,000 00	
Bank of Commerce—to cover advances	5,000 00	
Library, Laboratory, and Museum	1,000 00	
Permanent improvements	3,000 00	
Implements	500 00	
		14,500 00
11. Education Department and Normal School, Toronto.		
General repairs, etc.	3,000 00	
		3,000 00
12. Normal School, Ottawa.		
Improvements to grounds	2,000 00	
		2,000 00
13. Osgoode Hall.		
General repairs, etc.	3,000 00	
		3,000 00
14. Government House.		
Re-vote for general repairs, furnishings, etc	2,500 00	
Improvements to grounds, etc	1,500 00	
		4,000 00
15. Parliament Buildings.		
General repairs, planting, etc	2,500 00	
		2,500
16. Algoma District.		
Registry Office, Sault Ste. Marie, revote	2,500 00	
Two lock-ups on Grand Manitoulin Island	6,000 00	
		8,500 00
17. Thunder Bay District.		
Furnishing Court Room, etc., and for fences, etc	2,000 00	
		2,000 00
18. Nipissing District.		
Repairs to lock-up at Mattawan	200 00	
		200 00
1. Muskoka District.		
Repairs to Registry Office, Bracebridge	200 00	
Lock-up at Bracebridge	3,000 00	
		3,200 00
Parry Sound District.		
Repairs to Registry Office	200 00	
Lock-up at Parry Sound	3,000 00	
		3,200 00

XI.—PUBLIC WORKS

To be voted per Statement (A) $28,000 00

No. of Vote.	SERVICE.		Re-vote. (Estimated.)	New vote.
	PUBLIC WORKS.		$ cts.	$ cts.
1	Muskoka River Works		1,100 00	
	Stop logs, etc., at Muskoss Falls Works	$500 00		
	Dredging cut at entrance to river	1,500 00		
	Rock blasting, piers and slides	5,000 00		
			.....	7,000 00
2	Mary's and Fairy Lakes Works		200 00	
	Cribwork to protect embankments above lock, and completion of bridge and dams		.....	2,000 00
3	Gull and Burnt River Works:			
	Dams and slides, Stormy, Little Bear, Bear Lakes and outlet	$3,000 00		
	Rock blasting and side piers, Burnt River, and replanking Fenelon Falls slide	4,000 00		
	Dredging out dam, Gull Lake sluice	2,000 00		
			.....	9,000 00
4	Surveys, inspections, arbitrations and awards, and charges not otherwise provided foe		.....	5,000 00
5	Maintenance of locks, dams and swing bridges		.....	2,000 00
6	Lockmasters,' caretakers' and bridge-tenders' salaries		.....	1,700 00
			1,300 00	26,700 00
	SUMMARY.			
				Voted for 1877.
	1. Re-vote, included in above		1,300 00	
	2. Expenditure on capital account (new)		23,000 00	
	3. Do for repairs and maintenance		3,700 00	
			28,000 00	38,400 00

XII.—COLONIZATION ROADS.

To be voted per Statement (A) $85,700 00

	SERVICE.	To be voted for 1878.	—
	NORTH DIVISION.	$ cts.	
1.	Manitoulin Island Roads	3,500 00	
2.	Great Northern Roads	2,000 00	
3.	Rose and Lefroy Roads	1,000 00	
4.	Otter Lake Road and Bridge	1,000 00	
5.	Sault Ste. Marie and Great Northern Road—To improve	1,500 00	
6.	Korah and Batchawaung Road—To extend northward	1,000 00	
7.	St. Joseph's Island Centre Road—To extend southward	1,000 00	
8.	Cross Road at head of St. Joseph's Island	500 00	

XII.—COLONIZATION ROADS.—*Continued.*

SERVICE.	To be voted for 1877.	—
NORTH DIVISION.—*Continued.*	$ cts.	$ cts.
9. Roads in Thunder Bay District	2,000 00	
10. Fort William Road To improve	500 00	
		14,000 00
WEST DIVISION.		
1. Rousseau and Nipissing Road— To improve from Maganetawan River to Lake Nipissing	4,000 00	
2. Parry Sound Road— To repair from Rousseau eastward	2,500 00	
3 Parry Sound Road— To complete permanent improvements West from Rousseau	4,500 00	
4. Muskoka Road— To improve North of Long Swamp	2,500 00	
5. Muskoka Road— To extend and construct deviation in Perry	1,500 00	
6. Armour Road— To extend across Township	1,200 00	
7. Croft Road— To extend Northward	800 00	
8. Northern Road— To improve North of Maganetewan River	1,000 00	
9. Junction No. 2 Road— To repair North to Manitowaba Lake	1,000 00	
10. Macaulay Road	1,500 00	
11. Stephenson Town Line Road— To extend East of Bridge	1,500 00	
12. Junction No. 1 Road— To improve West End	800 00	
13. Dalton and Washago Road— To extend eastward	800 00	
14. Peninsula Road— To build a Bridge	500 00	
15. Monteith and Perry Road— To extend through Perry on 8th concession line	1,000 00	
16. Utterson Junction Road— To complete	500 00	
17. Port Sydney Road— To open 5 miles between Nos. 25 and 26 in Macaulay and Stephenson	1,000 00	
18. Sinclair Road— To open from Huntsville 7 miles	1,500 00	
19. Distress River Road— To prolong eastward	500 00	
20. Cardwell Road— To extend to Stisted Road	1,500 00	
21. Stisted Road— To repair south end	500 00	
		$30,600 00

XII.—COLONIZATION ROADS.—*Concluded.*

	SERVICE.	To be voted for 1878.	
	EAST DIVISION.		
1.	Hastings Road— To repair between Thanet and Doyle's	1,000 00	
2.	Monck Road— To repair through Rama and Dalton	2,000 00	
3.	Victoria Road— To improve north of R. R. station	800 00	
4.	Lutterworth Road— To open from Moore's Falls north west [illegible]	500 00	
5.	Addington Road— To repair	1,000 00	
6.	Frontenac Road— To repair	1,000 00	
7.	Mississippi Road— To repair	1,000 00	
8.	Tamworth and Oso Road— To improve	500 00	
9.	Flinton Road— To improve	500 00	
10.	Lavant Road— To improve	500 00	
11.	Addington and Bridgewater Road	500 00	
12.	Hagarty and Brudenel Road— To extend	1,500 00	
13.	Cobden Road— To extend	1,000 00	
14.	Peraults Settlement Road— To improve	1,000 00	
15.	Eganville and Foy Road— To improve	1,000 00	
16.	Admaston and Bagot Road— To open	1,000 00	
17.	Cumbermere Bridge	1,800 00	
18.	Indian River Bridge— Between lots 20 and 21 in Con. A of Alice	500 00	
19.	Bobcaygeon Road— To repair north of Peterson Road	1,000 00	
			18,100 00
	GENERAL PURPOSES.		
1.	Inspection and locations	3,000 00	
2.	Short new roads and repairs of like nature	20,000 00	
			23,000 00
	RECAPITULATION.		
1.	North Division	14,000 00	
2.	West Division	30,600 00	
3.	East Division	18,100 00	
4.	General Purposes	23,000 00	
	Total Estimates	$85,700 00	

XIII.—CHARGES ON CROWN LANDS.

No. of Vote.	A.	To be voted for 1878.	Voted for 1877.
		$ cts.	$ cts.
1	Expenditure on account of Crown Lands	89,000 00	91,600 00

SERVICE.	To be voted for 1878.	—
	$. cts.	
Details.		
Board of Surveyors	400 00	
Agents' salaries, commissions and disbursements	18,000 00	
Forest ranging and inspection of timber lands	14,000 00	
Surveys :—		
Townships north of Lake Superior and Lake Huron	16,000 00	
Townships in the Huron and Ottawa Territory	32,000 00	
Township of Sunnidale (re-vote)	1,600 00	
Maps	2,000 00	
Survey of Limits in the Huron and Ottawa Territory chargeable against holders	5,000 00	
	89,000 00	91,600 00

XIV.—REFUND ACCOUNT.

To be voted as per Statement (A) .....$70,713 76.

No. of Vote.	A.	To be voted for 1878.	Voted for 1877.
		$ cts.	$ cts.
1	Education	1,000 00	750 00
2	Crown Lands	23,000 00	23,000 00
3	Municipalities Fund	29,972 46	65,062 66
4	Land Improvement Fund	16,741 30	15,506 61
		70,713 76	104,319 27

XIV.—REFUND ACCOUNT.—*Continued.*

No. of Vote.	SERVICE.		$ cts.	$ cts.
	EDUCATION.			
1	Account of contributions to Superannuation Fund, withdrawn			1,000 00
	CROWN LANDS.			
2	For payments made to the credit of the Department on account of uncompleted purchases, and afterwards returned to proposed purchasers on purchases not being carried out		20,000 00	
	For two per cent. of timber dues payable to Municipalities for timber cut on road allowances		3,000 00	
				23,000 00
	MUNICIPALITIES FUND.			
3	To pay over to Municipalities the amount collected in 1877		37,465 57	
	Less 20 per cent. commission		7,493 11	
	Vide Stat. Can. 18 V. 2 C. and 19 V. c. 16			29,972 46
	LAND IMPROVEMENT FUND.			
4	Moneys collected from sale of Crown Lands, subject to the Land Improvement Fund, for the year ending 30th June, 1877	25,546 59		
	Less 4-5, leaving 1-5 to the Land Improvement Fund	20,437 28		
	Vide Stat. Can. 16 Vic., c. 159, and Con. Stat. Can. c. 26	5,109 31		
	Less 6 per cent. for cost of collection and management	306 55		
			4,802 76	
	Moneys collected from the sale of Common School Lands, subject to the Land Improvement Fund for the year ending 30th June, 1877	47,846 75		
	Less 6 per cent. for collection and management	2,870 80		
		44,975 95		
	To be distributed as follows:			
	¼ to Land Improvement Fund	11,243 99	11,243 99	
	¾ to be added to Common School Fund	33,731 96		
	Moneys collected from the sale of Grammar School Lands, subject to the Land Improvement Fund, from 30th June, 1876, to 30th June, 1877	2,955 50		
	Less 6 per cent. for collection and management	177 33		
		2,778 17		
	Less ¾, leaving ¼ to the Land Improvement Fund	2,083 62		
			694 55	16,741 30

XV.—UNFORESEEN AND UNPROVIDED.

To be voted as per Statement (A).....$50,000 00.

No. of Vote.	A.	To be voted for 1878.	Voted for 1877.
		$ cts.	$ cts.
	To meet unforeseen and unprovided expenses.....	50,000 00	50,000 00

SUPPLEMENTARY ESTIMATES.

ESTIMATES OF CERTAIN SUMS REQUIRED FOR THE SERVICES OF 1878, AND TO COMPLETE THE SERVICES OF 1877.

ADMINISTRATION OF JUSTICE.

Court of Appeal.

Messenger, balance of salary, 1878		$200 00

EDUCATION.

1. To meet the allowance for the year 1877 of $50 to 10 Model Schools in addition to the 40 provided for in the Estimates, the reports of which came in afterwards	$500 00	
2. Payment to the Public School Board of the City of Ottawa for Public Schools employed for Model School purposes	1,000 00	
3. For examining and reporting on Library and Prize Books, omitted to be paid in 1877	1,000 00	
		2,500 00

AGRICULTURE AND ARTS.

School of Arts and Design in London		500 00

HOSPITALS AND CHARITIES.

To defray the expenses of a grant in aid of Hospitals and Charities, being additional sum required to make up deficiency in allowance to certain institutions under the Act, so as to equal the amount paid last year	3,685 07	
Refuge for fallen Women, Ottawa	150 00	
St. Nicholas Home, Toronto	200 00	
		4,035 07

MISCELLANEOUS EXPENDITURE.

Consolidation of Statutes, balance required to complete	600 00	
Law Society, claims for water and gas subject to investigation	3,000 00	
Contested Elections	2,000 00	
John Meek, claim for services at Malden and London Asylum	400 00	
License Law, towards expenses in Municipalities where Temperance Act of 1864 is in force under chap. 181 R. Stat.	8,000 00	
Paris Exhibition	1,000 00	
A. N. Buell, to reimburse him for payments and disbursments while Accountant	800 00	
		15,800 00

GRATUITIES.

Hon. Wm. Cayley, Auditor	$2,000 00	
John Reinbird, Guard and Instructor, Provincial Reformatory, 18 years' service at $400, 18 months	600 00	
J. Gleeson, Guard, Provincial Reformatory, 14 years' service at $360, 14 months	420 00	
		$3,020 00

PUBLIC BUILDINGS.

Asylum for the Blind, Brantford, Principal's residence	5,000 00	
Asylum for the Insane, Toronto, Drainage and Water Supply in connection with the Asylum	5,000 00	
Asylum for the Insane, Kingston, to purchase additional land.	6,650 00	
Central Prison, purchase of machinery, lumber, &c., in connection with proposed new industry	4,000 00	
		20,650 00

PUBLIC WORKS.

Further account for surveys, inspectors, arbitrations and awards in connection with Public Works	6,000 00	
		6,000 00
		$52,705 07

REPORT

OF THE

REGISTRAR-GENERAL

OF THE

PROVINCE OF ONTARIO,

FOR THE

YEAR ENDING 31ST DECEMBER,

1876.

Printed by Order of the Legislative Assembly.

Toronto:
PRINTED BY HUNTER, ROSE & CO., 25 WELLINGTON ST. WEST.
1878.

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REPORT

OF THE

REGISTRAR-GENERAL

OF THE

PROVINCE OF ONTARIO,

FOR THE YEAR ENDING 31ST DECEMBER, 1876.

REGISTRAR-GENERAL'S OFFICE,
TORONTO, November 24th, 1877.

To His Honour the Honourable D. A. MACDONALD, *Lieutenant-Governor of the Province of Ontario,—*

SIR,—I have the honour to submit the Report on the Registration of Births, Marriages and Deaths for the year ending 31st December, 1876, and have great pleasure in pointing out the marked improvement that has taken place in the working of the Act, as is evidenced by the fact that while the number of registrations in 1875 was only 45,600, the number this year has reached 69,652, being an increase of 24,052, or 52.74 per cent.

The following statement presents a complete summary of all the tables interspersed throughout the Report. It compares the births, marriages and deaths registered during 1876 with those of 1875, giving the increase in numbers and per centage in each class, and also the totals of each county.

TABLE. A.

COUNTIES.	Births.				Marriages.				Deaths.				Total No. of B. M. D.		Total Increase.	Increase per cent.
	1875	1876	Increase	Increase per cent.	1875	1876	Increase	Increase per cent.	1875	1876	Increase	Increase per cent.	1875	1876		
Algoma	68	109	41	60	28	28	....	....	24	55	31	17	120	192	72	60
Brant	478	700	222	46	210	243	33	15	184	372	188	102	872	1310	443	53
Bruce	658	1205	547	83	302	375	73	24	182	436	254	139	1142	2016	874	76
Carleton	670	1053	383	57	320	382	62	20	248	469	221	89	1238	1904	666	53
Elgin	372	513	141	37	210	295	85	40	162	304	142	87	744	1112	368	49
Essex	706	956	250	35	220	285	65	29	212	421	209	98	1138	1662	524	46
Frontenac	304	784	480	157	206	270	64	31	144	549	405	281	654	1603	949	145
Grey	852	1307	455	34	312	395	83	26	204	454	250	122	1368	2156	788	57
Haldimand	480	661	181	37	124	209	85	68	184	226	42	22	788	1096	308	39
Halton	472	562	90	19	136	138	2	1	193	247	55	28	800	947	147	18
Hastings	584	993	409	70	390	450	60	15	288	615	327	113	1262	2058	796	63
Huron	1202	1649	447	37	414	477	63	15	330	665	335	101	1946	2791	845	43
Kent	784	978	194	24	276	341	65	23	264	425	161	60	1324	1744	420	31
Lambton	616	836	220	35	226	217	dec.	9	172	296	124	72	1014	1349	335	33
Lanark	448	715	267	59	192	225	33	17	134	271	137	102	774	1211	437	56
Leeds & Grenville	878	1044	166	18	348	351	3	8	350	555	205	58	1576	1950	374	23
Lennox & Addington	330	465	135	40	162	211	49	30	152	264	112	73	644	940	296	61
Lincoln	472	648	176	37	210	219	9	4	246	480	234	95	928	1347	419	45
Middlesex	1184	1874	690	58	556	678	122	21	428	1010	582	135	2168	3562	1394	64
Muskoka	216	348	132	61	46	59	13	28	72	113	41	56	334	520	186	55
Norfolk	718	781	63	8	216	265	49	22	304	341	37	12	1238	1387	149	12
Northumberland and Durham	658	1150	492	74	378	569	191	50	288	687	399	138	1324	2406	1082	81
Ontario	296	1215	919	310	112	398	286	25	110	556	446	405	518	2169	1651	318
Oxford	944	1093	149	15	312	387	75	24	358	540	182	50	1614	2020	406	25
Parry Sound	106	77	dec.	29	16	12	dec.	4	28	31	3	11	150	120	dec.	30
Peel	412	680	268	65	108	216	108	100	170	315	145	85	690	1211	521	75
Perth	924	1313	389	42	396	373	dec.	23	244	406	162	66	1564	2092	528	33
Peterborough	290	577	287	199	146	178	32	21	78	240	162	207	514	995	481	93
Prescott & Russell	488	1045	557	114	116	224	108	92	208	269	61	29	812	1538	726	89
Prince Edward	234	483	249	06	140	145	5	3	122	233	111	90	496	861	365	73
Renfrew	692	843	151	21	190	185	dec.	5	208	310	102	49	1090	1338	248	22
Simcoe	1048	1459	411	39	422	460	38	9	330	653	323	97	1800	2572	772	42
Stormont, D. & G.	568	1109	541	195	270	423	153	56	212	632	420	198	1050	2164	1114	106
Thunder Bay	34	74	40	17	12	41	29	241	14	30	16	114	60	145	85	141
Victoria	634	759	125	119	218	212	dec.	6	170	269	99	58	1022	240	218	21
Waterloo	514	1171	657	27	216	354	138	63	208	500	292	140	938	2025	1087	116
Welland	612	710	98	16	200	191	dec.	9	292	377	135	55	1954	1278	224	21
Wellington	1228	1693	465	37	416	530	114	27	438	680	242	55	2082	2903	821	39
Wentworth	1144	1362	218	19	426	420	dec.	6	494	1001	507	102	2064	2783	719	34
York	2650	3485	835	31	1084	1119	35	3	952	2326	1374	144	4686	6930	2244	47
Total	25968	38479	12511	48	10282	12550	2268	22	9350	18623	9273	99	45600	69652	24052	
													Total increase per cent.			52·74

The greatest improvement is found in the registration of deaths, the numbers returned for 1876 being 18,623 against 9,350 for 1875, an increase of 9,273, or nearly 100 per cent., maintaining for the whole year nearly the same ratio of increase as given in the interim report for the first six months of the year. Comparing the number of marriages registered in Ontario with those registered in England according to population, it is found that they are nearly the same. It may, therefore, be concluded that this portion of the vital statistics of this Province is nearly, if not quite up to the English standard.

RECAPITULATION.—TABLE A.

Date.	Number of Births.	Increase in numbers.	Increase per cent.	Number of Marriages.	Increase in numbers.	Increase per cent.	Number of Deaths.	Increase in numbers.	Increase per cent.	Total Increase.	Total Increase per cent.
1875	25968	.....	.....	10282	.....	.....	9350	.....	.....	.....	.....
1876	38479	12511	48·17	12550	2268	22·05	18623	9273	99·17	24052	52·74

TABLE B.—Showing the Increase or Decrease (as the case may be) of Births, Marriages and Deaths in the different County Towns of Ontario.

COUNTY TOWNS.	Births.					Marriages.					Deaths.					Total number of B. M. & D.			
	1875.	1876.	Increase.	Decrease.	Increase, per cent.	1875.	1876.	Increase.	Decrease.	Increase, per cent.	1875.	1876.	Increase.	Decrease.	Increase, per cent.	1875.	1876.	Total Increase.	Total Increase, per cent.
Brantford	167	237	70	..	41	86	111	25	....	29	62	134	72	..	115	315	482	167	53
Walkerton ...	39	73	34	..	87	42	29	....	13	....	8	16	8	..	100	89	118	29	32·5
Ottawa	152	458	306	..	201	199	266	67	....	33	76	235	159	..	209	427	959	532	134·5
St. Thomas ..	105	109	4	..	3	47	88	41	....	87	23	67	44	..	18	175	264	89	50·8
Sandwich	23	24	1	..	4	21	21	....	....	....	9	22	13	..	144	53	67	14	26·4
Kingston	91	416	325	..	357	107	141	34	....	31	23	345	322	..	1400	221	902	681	308·1
Owen Sound..	95	132	37	..	38	47	51	4	....	8	22	49	27	..	122	164	232	68	41·4
Cayuga	19	34	15	..	78	13	9	....	4	....	8	14	6	..	75	40	57	17	42·5
Milton	30	31	1	..	3	11	7	....	4	....	14	19	5	..	35	55	57	2	3·6
Belleville	120	284	164	..	136	146	134	....	12	....	81	214	133	..	45	347	632	285	82·1
Goderich	67	126	60	..	89	43	45	2	....	4	35	90	55	..	15	145	261	116	80
Chatham	112	114	2	..	1	108	119	11	....	10	65	90	25	..	38	285	323	38	13·3
Sarnia	78	106	28	..	35	46	55	9	....	19	19	59	40	..	210	143	220	77	53·7
Perth	21	66	45	..	214	16	53	37	....	230	3	39	36	..	1200	40	158	118	295
Brockville....	172	158	....	14	....	105	64	....	41	....	40	67	27	..	67	317	289	dec.	28
Napanee	42	48	6	..	14	49	56	7	....	14	23	43	20	..	87	114	147	33	29
St. Catharines	58	137	79	..	136	80	119	39	....	48	76	230	154	..	202	214	486	272	127·1
London	293	456	163	..	55	264	298	34	....	12	108	368	260	..	240	665	1122	457	68
Simcoe	61	53	....	8	....	59	43	..	16	....	34	33	....	1	....	154	129	dec.	25
Cobourg.....	....	134	134	..	....	....	90	90	..	....	....	95	95	..	....	....	319	319	.....
Whitby	62	77	15	..	24	39	24	..	15	....	14	56	42	..	300	115	157	42	36·6
Woodstock ...	114	128	14	..	12	54	74	20	....	37	48	76	28	..	58	216	278	62	28·7
Brampton	37	131	94	..	251	30	62	32	....	106	25	78	53	..	208	92	271	179	194·5
Stratford	134	243	109	..	81	134	79	....	55	....	23	52	29	..	81	291	374	83	28·5
Peterborough..	57	98	41	..	71	69	60	....	9	....	8	57	49	..	61	134	215	81	60·4
L'Orignal	..	44	44	..	....	....	32	32	....	....	....	12	12	..	....	....	88	88	.....
Picton	25	27	2	..	8	52	54	2	....	3	13	40	27	..	200	90	121	31	34·4
Pembroke	117	115	....	2	....	22	31	9	....	40	53	54	1	..	1	192	200	8	4·1
Barrie	81	123	42	..	51	88	47	....	41	....	37	100	63	..	170	206	270	64	12
Cornwall	22	91	69	..	313	62	44	....	18	....	35	58	23	..	65	119	193	74	22
Lindsay	95	110	15	..	15	53	69	16	....	30	27	43	16	..	59	175	222	47	26
Berlin.....	113	138	25	..	22	69	60	....	9	....	42	57	15	..	35	224	255	31	13
Welland.....	34	24	....	10	....	31	30	....	1	....	4	7	3	..	75	69	61	dec.	8
Guelph	227	311	84	..	37	99	132	33	....	34	93	118	25	..	26	419	561	142	33
Hamilton	504	644	140	..	27	282	240	....	42	....	159	633	474	..	298	945	1517	572	60
Toronto	1599	1984	385	..	24	748	714	....	34	....	643	1664	1021	..	158	2990	4362	1372	45
	4966	7485	2553	34	50·72	3321	3551	544	314	6·92	1953	5334	3382	1	162	10240	16365	6129	59·8

This table is compiled for the county towns on the same principle as Table A. The advance that has been made towards correct registrations of births, marriages and deaths is more plainly seen in the returns from the county towns than in those from the counties. It is seemingly very difficult to convince the inhabitants of rural districts of the necessity for the registration of vital statistics; but yet it is hoped that when a more thorough knowledge of registration has been disseminated throughout these districts, complete returns will be received from every part of the Province.

The population of the county towns by census of 1871 was 242,122. Estimating the increase from 1871 to 1876 at 28 per cent. as shown by the returns of the assessors, the population now amounts to 309,916.

TABLE C.

Table comparing the estimated Return of Births, Marriages and Deaths in the Cities and principal Towns, according to the English Standard, with the actual return thereof, based on the population as returned by the Assessors for the year 1876; also the principal causes of death in those places.

	Population in 1876 as returned by the Assessors	Estimated Return of Births, based on English scale, 35 per 1000.	Actual Return of Births 1876.	Estimated Return of Marriages, based on English scale, 8 per 1000.	Actual Return of Marriages 1876.	Estimated Return of Deaths, based on English scale, 21 per 1000.	Actual Return of Deaths 1876.	Miasmatic Diseases.							Phthisis or Consumption of Lungs.	Brain Disease.	Heart Disease.	Pneumonia.	Lung Disease.	Old Age.
								Scarlatina.	Diphtheria.	Dysentery.	Diarrhœa.	Typhoid Fever.	Continued Fever.	Scarlet Fever.						
		per 1000	per 1000	per 1000	per 1000	per 1000	per 1000													
Toronto	71693	2510 or 35	1984 or 27·673	574 or 8	714 or 9·959	1506 or 21	1664 or 23·210	20	28	17	74	51	2	57	187	10	42	112	24	59
Hamilton	32641	1143 "	644 " 19·729	261 "	240 " 7·352	685 "	633 " 19·392	1	46	1	51	10	2	4	79	3	20	36	7	33
Ottawa	25000	875 "	458 " 18·320	200 "	266 " 10·640	525 "	235 " 9·600	..	7	4	14	4	2	1	23	3	9	4	16	9
London	18196	637 "	456 " 25·060	146 "	298 " 16·377	382 "	368 " 20·218	..	5	2	20	5	2	2	64	5	12	37	..	18
St. Catharines	12870	450 "	137 " 10·644	103 "	119 " 9·245	270 "	230 " 17·871	4	6	4	5	8	1	26	20	3	9	5	8	10
Kingston	12786	447 "	416 " 32·535	102 "	141 " 11·027	268 "	345 " 26·987	2	2	4	5	4	2	2	43	9	16	26	2	21
Belleville	9768	342 "	284 " 29·074	78 "	134 " 13·074	205 "	214 " 21·900	..	..	..	4	5	2	3	38	4	5	4	10	18
Brantford	9444	330 "	237 " 25·095	76 "	111 " 11·753	197 "	134 " 14·188	..	6	..	4	4	..	..	29	5	6	3	2	10
Guelph	9017	316 "	311 " 34·490	72 "	132 " 14·639	189 "	118 " 13·086	..	1	1	9	3	1	1	13	3	4	1	12	4
Stratford	7729	270 "	243 " 31·440	62 "	79 " 8·022	162 "	52 " 6·740	..	1	..	..	..	..	..	4	2	4	2	7	3
Chatham	6989	245 "	114 " 16·311	56 "	119 " 17·026	147 "	90 " 12·877	..	8	..	4	..	..	..	21	1	2	..	9	2
Brockville	6868	240 "	158 " 23·005	55 "	64 " 9·318	145 "	67 " 9·755	..	..	..	..	..	..	1	11	..	4	11	1	2
Peterborough	6814	238 "	98 " 14·382	54 "	60 " 8·805	143 "	57 " 8·365	..	1	..	6	..	..	..	10	..	1	6	..	3
Port Hope	5974	209 "	89 " 18·078	48 "	50 " 8·369	126 "	61 " 10·210	..	2	..	2	..	..	..	6	1	4	..	8	5
St. Thomas	5527	193 "	109 " 19·721	44 "	88 " 15·921	116 "	67 " 12·120	..	8	..	1	2	..	..	14	1	4	..	3	8
Lindsay	5353	187 "	110 " 20·549	43 "	69 " 12·889	113 "	43 " 8·032	..	1	1	1	..	..	1	9	1	1	1	..	2
Woodstock	5176	181 "	128 " 17·967	41 "	74 " 14·296	109 "	76 " 14·683	..	21	..	4	2	2	..	13	..	3	5	..	2
Cobourg	5019	176 "	134 " 26·698	40 "	90 " 17·931	106 "	95 " 18·928	..	..	2	4	..	..	..	12	2	2	..	11	13
Goderich	5003	175 "	126 " 26·783	40 "	45 " 8·994	105 "	90 " 18·000	..	1	11	2	5	..	..	10	..	1	4	..	3
Barrie	4287	150 "	123 " 28·691	34 "	47 " 10·963	90 "	100 " 23·326	2	1	4	4	4	1	14	10	1	3	5	2	4
Total	266154	9314	6359 " 23·892	2129	2958 " 11·114	5589	4738 " 17·980	29	145	51	214	107	17	112	616	54	152	262	122	219

The returns from all the cities and the principal towns appear in this Table, for the purpose of showing their relative position as to the returns of Births, Marriages and Deaths.

The population given is based on the return of the Assessors for 1876, and shows an increase of 28 per cent. over the census of 1871, and although perhaps not actually correct, is a very near approximation to it.

The Births do not appear to have been all registered, but this is the case in many other countries. The Secretary of State of Michigan refers to the incomplete returns of Births in his State, and a similar complaint appears in the report from Nova Scotia. Even in Great Britain, where the utmost pains are taken to secure a thorough collection of Vital Statistics, the Registrar-General is compelled in his report, issued in 1874, to deplore a similar deficiency.

The Marriages given in this Table are higher than the estimated number according to the English standard, but this is accounted for by the practice that obtains in rural districts of people resorting to the towns and cities for the purpose of having their marriages celebrated. Consequently, the particulars are not registered in the division where the parties reside at the time of their marriage, but rather in the cities and towns where the marriage is celebrated.

The estimated number of deaths per 1000 inhabitants of the cities and towns in England similar to those in this Province is about 21. It will be seen by this table that the City of Kingston returns 26 deaths to every 1000 of its population, Toronto 23, the Towns of Barrie and Belleville 23 and 21 respectively, and the rest under that rate.

The average rate per 1000 of all these places is 17·98.

Taking the above scale as 64 for the total of Births, Marriages and Deaths for every 1000 of the population for each year, and comparing this ratio with the foregoing table, we find that

Kingston returns	... ...	70	per 1000
Belleville	"	64	"
Barrie	"	63	"
Cobourg	"	63	"
Guelph	"	62	"
London	"	61	"
Toronto	"	61	"
Goderich	"	53	"
Brantford	"	51	"
St. Thomas	"	47	"
Woodstock	"	47	"
Hamilton	"	46	"
Stratford	"	46	"
Chatham	"	46	"
Brockville	"	42	"
Lindsay	"	41	"
Ottawa	"	38	"
St. Catharines	"	38	"
Port Hope	"	36	"
Peterborough	"	31	

COMPARATIVE STATEMENT of the ratio of actual Return of Births, Marriages and Deaths, with the estimated English Standard.

	POPULATION.	Scale of Births, Marriages and Deaths per 1000, to population, according to English Standard.			Scale of Actual Return of Births, Marriages and Deaths, for 1876.		
		Births.	Marriages.	Deaths.	Births.	Marriages.	Deaths.
Province of Ontario	By Census of 1871, 1,619,161	35 per 1000	8 per 1000	18 per 1000	23·7 per 1000	7·7 per 1000	11·5 per 1000
County Towns	By Returns of Assessors, 1876, 309,916, being an increase of 28 per cent. on Census of 1871	35 "	8 "	18 "	23·5 "	11·8 "	16·5 "
Cities and principal Towns (20)	Do do 266,154	35 "	8 "	21* "	23·89 "	11·11 "	17·98 "

* This is a scale of similar Towns in England to our own.

The population of Ontario by the Census Returns of 1871 was	1,619,161
The increase in population, if calculated on the excess of Births over Deaths according to the English standard, would be 27,525·7 per year, or in the five years from 1871 to 1876	137,628
Making the population in 1876 (exclusive of the addition by immigration, alluded to hereafter)	1,756,789
By the actual returns of Births and Deaths—	
Excess of Births over Deaths in 1872	12,622
" " 1873	16,483
" " 1874	17,921
" " 1875	16,618
" " 1876	19,856
Total	83,500

The increase of population for 1872, in England, by excess of Births over Deaths, was was about 1·4 per cent. In this Province it is 1·1 per cent. for the year 1876.

TABLE D.—Births by Months.

COUNTIES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Date of Birth omitted.	Total.	No. of pairs of Twins.	Triplets.	Illegitimate.	Still born.
Algoma.																		
Male	3	5	....	5	4	5	1	5	6	1	3	8	....	46				
Female	7	2	9	8	6	2	3	4	7	7	3	5	....	63				
Total	10	7	9	13	10	7	4	9	13	8	6	13	....	109	....	..	2	....
Brant.																		
Male	29	24	29	26	31	33	30	33	38	26	29	18	....	346				
Female	29	31	22	20	35	37	27	32	26	29	36	30	....	354				
Total	58	55	51	46	66	70	57	65	64	55	65	48	....	700	11	..	4	4
Bruce.																		
Male	42	62	52	62	51	30	51	59	49	63	47	53	....	621				
Female	49	47	67	49	40	40	45	51	43	60	49	43	1	584				
Total	91	109	119	111	91	70	96	110	92	123	96	96	1	1205	9	..	7	1
Carleton.																		
Male	39	59	59	54	56	30	38	51	60	42	35	44	....	576				
Female	44	51	49	59	40	45	35	39	30	26	31	26	2	477				
Total	83	110	108	113	96	84	73	90	90	68	66	70	2	1053	13	1	28	1
Elgin.																		
Male	28	24	28	19	16	18	21	21	19	20	13	29	...	256				
Female	26	15	21	23	25	17	14	22	27	23	21	23	....	257				
Total	54	39	49	42	41	35	35	43	46	43	34	52	....	513	1	..	2	....

TABLE D.—Births by Months.—*Continued.*

COUNTIES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Date of Birth omitted.	Total.	No. of pairs of Twins.	Triplets.	Illegitimate.	Still born.
Essex.																		
Male	54	40	51	51	34	44	40	36	33	48	33	37	....	501				
Female	44	32	44	41	30	23	40	48	40	39	32	41	1	455				
Total	98	72	95	92	64	67	80	84	73	87	65	78	1	956	12	..	5	1
Frontenac.																		
Male	26	39	48	30	36	35	35	35	24	39	27	26	....	400				
Female	35	37	43	35	25	21	34	27	35	40	22	28	2	384				
Total	61	76	91	65	61	56	69	62	59	79	49	54	2	784	7	..	23	2
Grey.																		
Male	51	57	77	73	61	68	49	49	51	47	62	53	....	698				
Female	47	52	57	55	53	47	50	48	58	64	27	51	....	609				
Total	98	109	134	128	114	105	99	87	109	111	89	104	....	1307	11	..	8	1
Haldimand.																		
Male	24	22	29	31	23	26	33	27	28	30	39	20	....	332				
Female	25	30	32	36	28	22	31	25	29	23	26	22	....	329				
Total	49	52	61	67	51	48	64	52	57	53	65	42	....	661	6	..	7	2
Halton.																		
Male	9	18	23	25	25	29	26	28	28	36	26	12	....	285				
Female	27	21	29	33	25	16	21	19	15	30	19	22	....	277				
Total	36	39	52	58	50	45	47	47	43	66	45	34	....	562	4	...	5	1
Hastings.																		
Male	33	36	55	51	57	43	41	49	39	50	45	44	....	543				
Female	25	30	44	43	47	41	36	33	37	31	46	37	....	450				
Total	58	66	99	94	104	84	77	82	76	81	91	81	....	993	8	..	6	9
Huron.																		
Male	71	68	93	80	62	65	72	69	54	88	57	70	....	849				
Female	84	59	63	71	53	66	64	69	72	71	70	58	....	800				
Total	155	127	156	151	115	131	136	138	126	159	127	128	....	1649	16	..	7	3
Kent.																		
Male	45	50	59	49	42	30	37	44	49	33	44	33	....	515				
Female	34	42	48	40	44	25	24	42	36	49	37	42	....	463				
Total	79	92	107	89	86	55	61	86	85	82	81	75	.....	978	13	..	2	1
Lambton.																		
Male	27	41	34	37	36	33	30	41	33	49	27	27	....	415				
Female	39	47	42	41	33	34	25	30	34	44	28	24	....	421				
Total	66	88	76	78	69	67	55	71	67	93	55	51	....	836	12	..	5	1

TABLE D.—Births by Months.—*Continued.*

COUNTIES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Date of Birth omitted.	Total.	No. of pairs of Twins.	Triplets.	Illegitimate.	Still born.
Lanark.																		
Male	30	33	46	32	26	36	31	32	30	29	23	26	....	374				
Female	34	31	35	26	32	40	24	33	19	26	23	18	....	341				
Total	64	64	81	58	58	76	55	65	49	55	46	44	....	715	6	..	8	1
Leeds & Grenville.																		
Male	63	40	44	47	43	35	36	48	41	41	40	53	....	531				
Female	46	40	59	42	36	40	33	59	36	44	35	43	....	513				
Total	109	80	103	89	79	75	69	107	77	85	75	96	....	1044	11	..	10	1
Lennox & Addington.																		
Male	22	27	32	20	13	24	24	19	22	22	18	12	....	255				
Female	20	18	20	24	19	16	14	11	9	25	18	16	....	210				
Total	42	45	52	44	32	40	38	30	31	47	36	28	....	465	6	..	1	5
Lincoln.																		
Male	20	22	25	22	26	23	28	31	25	31	21	33	1	308				
Female	17	21	36	26	35	32	40	25	24	29	31	23	1	340				
Total	37	43	61	48	61	55	68	56	49	60	52	56	2	648	8	..	5	3
Middlesex.																		
Male	82	77	96	79	77	73	93	76	85	91	70	74	1	974				
Female	65	70	74	76	77	67	71	83	78	90	69	80	....	900				
Total	147	147	170	155	154	140	164	159	163	181	139	154	1	1874	7	..	31	6
Muskoka.																		
Male	14	18	20	21	16	8	13	8	13	11	15	20	....	177				
Female	16	8	15	23	21	11	10	14	12	16	14	11	.....	171				
Total	30	26	35	44	37	19	23	22	25	27	29	31	.....	348	3	..	4	2
Norfolk.																		
Male	22	31	38	39	39	28	37	33	38	43	26	29	.....	403				
Female	31	33	32	41	25	28	38	39	30	28	26	27	.....	378				
Total	53	64	70	80	64	56	75	72	68	71	52	56	.....	781	8	..	15	5
Northumberland & Durham.																		
Male	55	49	49	56	42	42	57	61	66	47	39	37	....	600				
Female	40	39	46	56	61	40	38	53	40	61	33	43	.....	550				
Total	95	88	95	112	103	82	95	114	106	108	72	80	.....	1150	11	..	11	1
Ontario.																		
Male	49	49	67	48	64	40	69	49	55	52	50	52	1	645				
Female	39	50	62	37	39	40	52	55	50	62	44	40	....	570				
Total	88	99	129	85	103	80	121	104	105	114	94	92	1	1215	12	..	6	2

TABLE D.—Births by Months.—*Continued.*

COUNTIES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Date of Birth omitted.	Total.	No. of pairs of Twins.	Triplets.	Illegitimate.	Still born.
Oxford.																		
Male	37	48	57	63	39	36	45	40	49	46	33	37	4	534				
Female	45	40	51	47	56	49	50	49	54	44	36	36	2	559				
Total	82	88	108	110	95	85	95	89	103	90	69	73	6	1093	7	..	12	3
Parry Sound.																		
Male	3	3	3	6	3	2	4	2	8	1	6	2	.....	43				
Female	3	4	3	6	5	2	....	5	3	1	1	1	.....	34				
Total	6	7	6	12	8	4	4	7	11	2	7	3	.....	77	1	...	2	1
Peel.																		
Male	23	17	31	35	28	27	28	46	29	35	30	37	.....	366				
Female	27	20	25	22	17	24	25	29	38	33	26	28	.....	314				
Total	50	37	56	57	45	51	53	75	67	68	56	65	.....	680	7	...	8	2
Perth.																		
Male	45	45	54	65	61	45	40	64	68	54	59	46	.....	646				
Female	48	49	58	54	72	55	62	69	53	50	42	55	.....	667				
Total	93	94	112	119	133	100	102	133	121	104	101	101	....	1313	8	...	6	3
Peterborough.																		
Male	27	20	25	32	25	24	22	31	23	18	22	24	.....	293				
Female	23	35	20	25	30	12	26	25	15	26	26	21	.....	284				
Total	50	55	45	57	55	36	48	56	38	44	48	45	.....	577	3	...	2	3
Prescot & Russell.																		
Male	45	48	52	53	50	36	52	35	52	42	32	50	.....	547				
Female	55	48	63	51	42	31	41	34	35	31	31	36	.....	498				
Total	100	96	115	104	92	67	93	69	87	73	63	86	.....	1045	8	...	7	.....
Prince Edward.																		
Male	24	19	28	16	16	15	21	17	16	18	18	25	.....	233				
Female	23	21	28	17	20	16	15	30	20	17	24	19	.....	250				
Total	47	40	56	33	36	31	36	47	36	35	42	44	....	483	3	..	6	1
Renfrew.																		
Male	36	36	53	38	42	44	31	29	33	33	31	25	.....	431				
Female	27	42	43	44	32	28	41	42	33	33	23	24	.....	412				
Total	63	78	96	82	74	72	72	71	66	66	54	49	.....	843	8	...	9	3
Simcoe.																		
Male	52	59	70	71	54	69	43	58	65	65	53	56	.....	715				
Female	54	73	84	71	65	47	63	52	60	66	50	58	1	744				
Total	106	132	154	142	119	116	106	110	125	131	103	114	1	1459	8	...	7	3

TABLE D.—Births by Months.—*Concluded.*

COUNTIES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Date of birth omitted.	Total.	No. of pairs of Twins.	Triplets.	Illegitimate.	Still born.
Stormont, Dundas & Glengarry.																		
Male	51	38	58	44	50	43	46	43	43	40	40	50	.....	546				
Female	35	45	53	50	44	56	38	37	60	52	42	51	.....	563				
Total	86	83	111	94	94	99	84	80	103	92	82	101	....	1109	21	...	10	2
Thunder Bay.																		
Male	4	1	2	5	1	3	2	3	6	4	4	2	.....	37				
Female	1	1	3	4	5	7	5	3	3	1	2	2	....	37				
Total	5	2	5	9	6	10	7	6	9	5	6	4	.....	74	....	..	.....	...
Victoria.																		
Male	22	25	42	35	34	31	27	28	29	42	34	33	....	385				
Female	23	22	35	35	40	28	26	37	46	26	27	29	....	374				
Total	45	47	77	70	74	62	53	65	75	68	61	62	....	759	9	..	3	...
Waterloo.																		
Male	54	60	51	37	51	34	45	50	54	60	53	47	....	596				
Female	57	31	56	58	45	46	40	54	46	44	47	48	....	575				
Total	111	94	107	95	96	80	85	104	100	104	100	95	....	1171	13	..	26	..
Welland.																		
Male	23	46	42	26	22	31	26	34	36	29	28	24	1	368				
Female	32	25	39	24	30	21	26	30	28	32	32	22	1	342				
Total	55	71	81	50	52	52	52	64	64	61	60	46	2	710	5	...	3	3
Wellington.																		
Male	58	71	70	80	85	63	64	57	70	73	73	60	1	825				
Female	82	68	96	73	59	66	55	83	63	76	66	81	....	868				
Total	140	139	166	153	144	129	119	140	133	149	139	141	1	1693	16	...	11	1
Wentworth.																		
Male	59	58	75	63	58	54	54	56	53	63	51	61	....	705				
Female	54	61	55	67	39	45	53	59	47	75	52	50	....	657				
Total	113	119	130	130	97	99	107	115	100	138	103	111	....	1362	9	.	13	6
York.																		
Male	138	156	154	156	136	145	149	181	169	164	146	124	1	1813				
Female	146	139	159	127	128	122	152	147	141	149	136	126	....	1672				
Total	284	295	313	277	264	267	301	328	310	313	282	250	1	3485	28	.	65	30
Total Males	1539	1641	1921	1776	1635	1512	1591	1678	1689	1726	1502	1513	10	19733				
Total Females	1558	1533	1820	1680	1558	1405	1487	1646	1532	1673	1403	1440	11	18746				
Grand Total.	3097	3174	3741	3456	3193	2917	3078	3324	3221	3399	2905	2953	21	38479	349	1	392	114

Of the 38,479 children born, 19,733 were males and 18,746 females, being an increase of 5,078 males and 5,163 females over the number registered in 1875.

The population of Ontario, according to the census of 1871, was 1,619,161, and if 15 per cent. is taken as the increase since that year the population would now be 1,862,035. The increase is arrived at by the excess of births over deaths in each year, basing the calculation on the system adopted by the Registrar General of England, viz., an increase of 17 per 1000. The result shows 137,628 as having been added to the population by this means, and an addition of 105,246 as the number of emigrants settled in the Province since 1871; the total amounts to 1,862,035, or 15 per cent. as above mentioned, which is, doubtless, a fair approximation to the population of the Province for 1876.

The ratio, therefore, of births to 100 living in Ontario is	....	.....	2·31
do do	Ohio	....	2·03
do do	Nova Scotia	.....	2·65
The number of persons to one birth in Ontario is	.....	...	48·39
do do	Ohio	.....	43·90
do do	Nova Scotia	.....	37·00

The proportion of the sexes of the births are in Ontario 105·2 males to 100 females.
do do Ohio, 107·3 do do
do do Nova Scotia, 106·6 do do

DUAL BIRTHS.

The twin births reported, number 349 against 264 in 1875.

ILLEGITIMATE BIRTHS.

The birth of 392 illegitimate children was registered during 1876 against 198 in 1875, being an increase of 194 in 1876; at the same time it must be borne in mind that there is a total increase of 12,511 in the number of births registered during 1876 over that of 1875; the per centage of increase of illegitimates is therefore only equal to $4\frac{1}{10}$ of one per cent. If the number of children born out of wedlock in Ontario be compared with the numbers in other countries they do not appear excessive. It is not thought, however, that in any country the correct number is arrived at, as there is in all cases an endeavour on the part of interested relatives as well as on the part of the mothers to evade the registration of an illegitimate child.

In Ontario, according to the return, the illegitimates are 1 in every 98 births, or a percentage of 1·02 in every 100 births.

In Nova Scotia, 1 in every 56 births, or a percentage of 1·7 in every 100 births.

In Great Britain, 1 in every 18 births, or a percentage of 5·4 in every 100 births.

In Vermont, 1 in every 125 births, or a percentage of 1·08 in every 100 births.

In Massachussetts, 1 in every 95, or a percentage of 1·05 in every 100 births.

ORDER OF BIRTHS BY MONTHS.

Months.	Males.	Females.	Total.
March	1921	1820	3741
April	1776	1680	3456
October	1726	1673	3399
August	1678	1646	3324
September	1689	1532	3221
May	1635	1558	3193
February	1641	1533	3174
January	1539	1558	3097
July	1591	1487	3078
December	1513	1440	2953
June	1512	1405	2917
November	1502	1403	2905
Date of birth omitted			21
			38479

The greatest number of births in any one month occurred in March, and the least number in November.

1921 males and 1820 females were born in the former, and 1502 males and 1403 females in the latter month.

The following exhibits the births by quarterly returns:

	Males.	Females.	Total.
Quarter ending March 31	5101	4911	10012
do June 30	4923	4643	9566
do September 30	4958	4665	9623
do December 31	4741	4516	9257
Date of birth omitted			21
			38479

The average number of births within the several specified periods is as follows:

	Males.	Females.	Total.
For the year	19733	18746	38479
do month	1644	1562	3206
do week	379	360	739
do day	54	51	105

In 1872 the difference in favour of the males was			1027
" 1873	do	do	1037
" 1874	do	do	1073
" 1875	do	do	1064
" 1876	do	do	987

MARRIAGES.

The population of Ontario in 1871 was 1,619,161, which shows one marriage to every 162 persons. Taking the average annual increase at three per cent., the population in 1872 would be 1,667,736, and the number of marriages registered in that year was 10,450, or one marriage to every 159 persons. In 1873, allowing the same ratio of increase of population, there were 10,998 marriages, or one to every 156 of the population. In 1874, one to every 161. In 1875, one to every 176; and for this year, 1876, one couple was married to every 148 of the people living. The following table shows, in a concise manner, the population of the above years, the number of marriages in each year, and the number of the population to each marriage.

Years.	Population.	No. of Marriages.	Population to each Marriage.
1871	1,619,161	9,939	162
1872	1,667,736	10,450	159
1873	1,716,310	10,998	156
1874	1,764,885	10,925	161
1875	1,813,460	10,282	176
1876	1,862,035	12,550	148

In England, the ratio is one marriage to every 121 of the population; in Scotland, one in 144; in Vermont, one in 112; in Massachusets, one in 100; in Rhode Island, one in 101; and in Nova Scotia, one in 132. Annexed will be found a table giving the population of each county for 1876, based on an increase of fifteen per cent. (the reason for assuming this per centage of increase has already been given in the remarks on the Table of Births), and the number of marriages in each county for that year, and the ratio of marriages to the population.

COUNTIES.	Population, 1876.	No. of Marriages.	Ratio of Marriages to Population.
Algoma (including Thunder Bay)	8,070	69	116
Brant	37,097	243	152
Bruce	55,792	375	148
Carleton	49,776	382	130
Elgin	38,716	295	131
Essex	37,602	285	131
Frontenac	33,024	270	122
Grey	68,304	395	172
Haldimand	28,579	209	136
Halton	25,996	138	188
Hastings	55,619	450	123
Huron	76,089	477	159
Kent	46,740	341	137
Lambton	44,734	217	206
Lanark	37,973	225	168
Leeds and Grenville	66,606	351	189
Lennox and Addington	43,364	211	205
Lincoln	33,979	219	155
Middlesex	94,984	678	140
Muskoka	6,210	59	105
Norfolk	35,377	265	133
Northumberland and Durham	87,935	569	154
Ontario	52,773	398	132
Oxford	55,473	387	143
Parry Sound	1,747	12	145
Peel	29,913	216	138
Perth	53,500	373	143
Peterborough	35,047	178	196
Prescott and Russell	41,390	224	184
Prince Edward	23,387	145	161
Renfrew	32,170	185	173
Simcoe	73,885	460	160
Stormont, Dundas and Glengarry	67,031	423	158
Victoria	34,730	212	163
Waterloo	46,289	354	130
Welland	29,625	191	154
Wellington	72,784	530	137
Wentworth	66,239	420	157
York	133,486	1119	119
Total	1,862,035	12,550	148

The ratio of marriages to population in the different counties varies considerably.

In the county of York it is the highest, being one marriage to every 119, or one person married during the year out of every 60.

Frontenac is second, with one in 122; and Hastings third, having registered one marriage in every 123. The counties of Lambton and Lennox and Addington return the lowest marriage rate, being only one in 206 in the former county, and one in 205 in the latter. (Algoma and Muskoka, although showing the highest rate, are not here placed, because the population is believed to be much larger, on account of the increased immigration to those places during the last three years.)

The per centages of persons married to the population for the last six years are as follows:—

In 1871—1·22 per cent.
" 1872—1·25 "
" 1873—1·28 "
In 1874—1·24 per cent.
" 1875—1·13 "
" 1876—1·34 "

TABLE E.—Marriages.

The following Table shows the number of Marriages returned as having been solemnized during the year 1876, the religious denomination of the parties married, and whether by License or Banns.

COUNTIES.	Religious Denomination of Bride and Bridegroom.													How Married.			
	Episcopalian.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregational.	Lutheran.	Quaker.	Mennonite.	Bible Christian.	Other Denominations.	Total.	No denomination given.	Grand Total of Persons Married.	License.	Banns.	Not Stated.	Total Marriages.
Algoma	13	8	11	24	....	....	....	....	....	....	....	56	....	56	18	10	..	28
Brant	59	52	197	52	104	11	....	....	2	1	3	481	5	486	222	21	..	243
Bruce	77	287	204	86	40	4	38	1	2	....	5	744	6	750	314	61	..	375
Carleton	194	109	120	309	12	5	10	....	....	....	5	764	....	764	263	118	1	382
Elgin	74	62	261	27	119	1	8	5	....	11	15	583	7	590	283	12	..	295
Essex	80	24	157	264	21	....	1	....	....	6	17	570	....	570	159	123	3	285
Frontenac	138	83	220	82	3	6	....	....	....	....	8	540	....	540	232	38	..	270
Grey	123	241	293	22	25	6	53	3	....	5	18	789	1	790	369	22	4	395
Haldimand	77	48	175	18	44	2	17	....	10	1	23	415	3	418	197	11	1	209
Halton	43	80	119	23	6	....	....	....	....	....	4	275	1	276	138	....	..	138
Hastings	147	83	483	147	7	6	4	....	....	18	....	895	5	900	393	56	1	450
Huron	149	358	247	66	8	9	37	..	2	68	7	951	3	954	444	30	3	477
Kent	80	113	301	92	52	1	2	..	....	....	14	655	27	682	291	49	1	341
Lambton	60	127	188	10	34	7	1	..	....	....	3	430	4	434	205	11	1	217
Lanark	132	163	80	30	18	20	1	..	....	....	....	444	6	450	216	8	1	225
Leeds & Grenville	170	102	309	95	17	1	....	..	....	....	3	697	5	702	311	39	1	351
Lennox & Addington	46	34	270	65	2	....	2	..	....	....	....	419	3	422	184	27	..	211
Lincoln	75	57	163	56	34	....	8	..	7	3	22	425	13	438	195	23	1	219
Middlesex	296	265	459	120	134	10	....	1	....	39	22	1346	10	1356	639	37	2	678
Muskoka	26	22	51	4	2	1	6	..	....	....	..	112	6	118	55	4	..	59
Norfolk	35	39	232	28	165	6	6	..	....	....	10	521	9	530	246	17	2	265
Northumberland & Durham	212	198	482	85	13	8	1	7	....	99	23	1128	10	1138	523	30	16	569
Ontario	121	165	316	55	37	10	....	6	1	69	9	789	7	796	366	31	1	398
Oxford	134	148	301	31	119	3	1	9	1	2	17	766	8	774	366	19	2	387
Parry Sound	4	3	12	4	....	....	....	..	....	....	....	23	1	24	12	....	..	12
Peel	69	107	209	11	14	6	....	..	....	2	3	421	11	432	209	5	2	216
Perth	99	230	185	45	27	8	90	..	8	30	21	743	3	746	340	32	1	373
Peterborough	55	76	141	47	6	....	....	..	....	24	....	349	7	356	154	24	..	178
Prescott & Russell	31	41	20	343	13	....	....	..	....	....	....	448	....	448	60	163	1	224
Prince Edward	35	22	211	11	1	....	....	5	....	....	2	287	3	290	143	2	..	145
Renfrew	57	92	63	115	11	....	29	..	....	....	....	367	3	370	126	58	1	185
Simcoe	193	232	302	138	25	5	1	1	....	5	6	919	1	920	402	58	..	460
Stormont, Dundas and Glengarry	76	195	212	291	34	6	29	..	11	1	1	845	1	846	284	137	2	423
Thunder Bay	21	10	10	38	1	....	....	....	....	....	1	81	1	82	22	19	..	41
Victoria	87	106	145	32	7	3	....	1	....	38	4	423	1	424	198	13	1	212
Waterloo	35	100	70	115	9	....	242	4	74	....	23	672	36	708	203	145	6	354
Welland	67	54	138	35	11	2	23	7	15	1	16	369	13	382	165	26	..	191
Wellington	148	364	315	100	47	20	13	1	2	3	31	1044	16	1060	476	48	6	530
Wentworth	215	158	343	61	30	9	6	....	1	....	8	831	9	840	403	17	..	420
York	690	407	646	218	92	40	21	21	8	8	69	2220	18	2238	1036	74	9	1119
Grand Total	4443	5065	8661	3395	1344	216	650	72	144	434	413	24837	263	25100	10862	1618	70	12550

Although the attention of clergymen has been called in the reports of my predecessors to the fact that in each year a large number of marriages are returned without the religious denomination to which the parties belong being given, a great number are still so returned for the year 1876; and it seems a pity that anything should have been left undone to mar the otherwise perfect return that clergymen have made for the year under review.

34·87	per cent. or	1	in every 2·86	persons married whose denominations were given were	Methodists.
20·39	"	1	4·90	"	"	Presbyterians.
17·88	"	1	5·59	"	"	Episcopalians.
13·67	"	1	7·61	"	"	Roman Catholics.
5·41	"	1	18·47	"	"	Baptists.
2·62	"	1	38·21	"	"	Lutherans.
1·75	"	1	57·22	"	"	Bible Christians.
·86	"	1	115·00	"	"	Congregationalists.
·59	"	1	172·47	"	"	Menonites.
·29	"	1	344·95	"	"	Quakers.
1·67	"	1	60·13	"	"	Other denominations.

86.55 per cent. of the marriages were by license, 12.90 per cent. by banns, and of the remaining .55 per cent. the clergyman omitted to state whether the marriage was by banns or license.

TABLE F.—Marriages by Months.

COUNTIES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	No date given.	Total number of Couples Married.
Algoma	2	3	5	...	....	4	4	2	3	2	2	1	..	28
Brant	25	20	19	15	20	13	9	16	25	18	26	37	..	243
Bruce	37	40	45	39	24	21	19	10	20	30	42	47	1	375
Carleton	30	35	17	27	31	34	40	35	36	39	40	17	1	382
Elgin	20	20	22	21	14	27	26	17	31	35	27	35	..	295
Essex	34	42	12	12	25	22	9	15	27	26	34	26	1	285
Frontenac	26	20	26	19	13	17	18	18	22	28	26	31	6	270
Grey	46	43	40	25	28	28	26	21	22	25	32	58	1	395
Haldimand	24	19	18	5	24	10	15	10	31	19	11	23	..	209
Halton	15	11	12	10	5	11	6	5	12	16	13	21	1	138
Hastings	30	38	32	30	33	37	30	25	36	49	46	63	1	450
Huron	54	42	53	25	32	36	24	23	43	40	43	61	1	477
Kent	26	34	32	21	31	27	23	18	27	29	29	39	5	341
Lambton	19	11	13	19	13	22	13	15	17	24	27	23	1	217
Lanark	20	13	20	24	11	15	21	10	23	14	22	32	..	225
Leeds and Grenville	33	35	23	28	23	31	17	26	33	26	34	42	..	351
Lennox and Addington	19	21	20	16	11	15	12	9	19	18	23	26	2	211
Lincoln	18	14	13	11	16	11	12	11	22	29	31	30	1	219
Middlesex	58	59	58	46	52	56	30	22	57	59	88	90	3	678
Muskoka	5	1	6	6	4	6	3	7	5	6	3	6	1	59
Norfolk	28	16	21	19	25	16	22	11	24	23	22	37	1	265
Northumberland and Durham	47	71	51	30	40	36	42	27	41	60	42	79	3	569
Ontario	50	36	37	25	18	24	32	17	18	41	40	57	3	398
Oxford	21	39	29	30	27	26	33	20	44	30	30	57	1	387
Parry Sound	1	....	1	.....	.....	1	....	3	2	1	1	2	..	12
Peel	23	14	22	19	10	17	12	4	11	21	19	44	..	216
Perth	38	36	46	19	25	22	27	20	27	40	39	34	..	373
Peterborough	17	25	21	16	12	13	6	5	19	17	8	18	1	178
Prescott and Russell	23	22	3	15	20	8	28	22	21	36	22	3	1	224
Prince Edward	14	15	9	8	7	6	12	9	9	16	11	28	1	145
Renfrew	13	12	13	15	15	12	20	17	18	18	21	10	1	185
Simcoe	45	56	46	35	33	28	33	23	31	39	40	48	3	460
Stormont, Dundas and Glengarry	34	59	23	22	25	38	37	35	41	44	31	33	1	423
Thunder Bay	3	3	2	1	3	5	4	1	6	3	5	5	..	41
Victoria	10	21	24	13	11	17	17	8	21	25	17	27	1	212
Waterloo	28	46	28	29	23	20	13	18	37	45	34	33	..	354
Welland	18	10	18	7	17	14	19	10	15	21	21	21	..	191
Wellington	49	58	49	45	31	33	17	32	46	51	43	73	3	530
Wentworth	35	33	25	27	29	30	28	31	38	39	51	54	..	420
York	104	75	81	83	78	102	96	75	80	88	107	139	11	1119
Total	1142	1166	1035	857	859	911	85 5	703	1060	1190	1203	1512	57	12550

The Quarterly Returns of Marriages exhibit the numbers as hereunder in the order of priority.

For the quarter ending	December 31st	3905
Do	March 31st	3343
Do	September 30th	2627
Do	June 30th	2618
Date of marriage omitted		57
	Total	12550

In 1876 as in former years the maximum and minimum of Marriages occurred in December and August.

The average number of Marriages	per quarter	3137
Do	per month	1045
Do	per week	241
Do	per day	34

TABLE G.—Marriages by Ages.

Table exhibiting the respective Ages of the parties Married during the year under review.

COUNTIES.	Sex.	No. of Couples.	Under 20.	20 and under 25.	25 and under 30.	30 and under 35.	35 and under 40.	40 and under 45.	45 and under 50.	50 and under 55.	55 and under 60.	60 and under 65.	65 and under 70.	70 and under 75.	75 and under 80.	Over 80.	Age not given.	Total.
Algoma	M	....	2	9	10	2	5	....	....	....	....	..	..	..	..	..	....	28
	F	....	12	13	2	....	1	....	....	.....	....	..	..	..	..	..	....	28
	Total	28	14	22	12	2	6	....	....	....	....	..	..	..	..	..	....	56
Brant	M	....	3	110	82	20	8	11	4	1	....	1	..	3	..	..	....	243
	F	....	62	115	43	10	6	3	2	1	....	1	..	..	..	..	....	243
	Total	243	65	225	125	30	14	14	6	2	....	2	..	3	..	..	.....	486
Bruce	M	....	2	126	149	46	28	11	8	....	2	..	..	..	..	..	3	375
	F	....	96	197	46	20	8	4	....	....	1	..	..	..	..	..	3	375
	Total	375	98	323	195	66	36	15	8	....	3	..	..	..	..	..	6	750
Carleton	M	....	10	118	134	54	28	12	10	6	1	3	..	..	..	1	5	382
	F	....	87	169	68	26	11	7	5	2	1	..	..	..	..	..	6	382
	Total	382	97	287	202	80	39	19	15	8	2	3	..	..	..	1	11	764
Elgin	M	....	2	127	107	24	13	4	5	3	2	2	3	1	..	..	2	295
	F	....	76	133	55	14	3	3	4	1	1	2	..	..	..	..	3	295
	Total	295	78	260	162	38	16	7	9	4	3	4	3	1	..	..	5	590
Essex	M	....	9	113	101	28	10	7	6	4	3	1	..	1	2	..	....	285
	F	.....	103	111	37	10	6	6	6	1	.....	2	..	..	..	..	....	285
	Total	285	112	227	138	38	16	13	12	5	3	3	..	1	2	..	....	570

TABLE G.—Marriages by Ages.—*Continued.*

COUNTIES.	Sex.	No. of Couples.	Under 20.	20 and under 25.	25 and under 30.	30 and under 35.	35 and under 40.	40 and under 45.	45 and under 50.	50 and under 55.	55 and under 60.	60 and under 65.	65 and under 70.	70 and under 75.	75 and under 80.	Over 80.	Age not given.	Total.
Frontenac	M	....	8	89	105	25	10	11	4	5	2	3	4	1	1	..	2	270
	F	....	58	123	47	18	6	1	3	2	3	..	1	..	..	..	8	270
	Total	270	66	212	152	43	16	12	7	7	5	3	5	1	1	..	10	540
Grey	M	....	3	142	156	44	22	10	7	4	2	3	1	1	..	..	....	395
	F	....	109	191	64	12	5	5	4	2	1	1	..	1	..	..	....	395
	Total	395	112	333	220	56	27	15	11	6	3	4	1	2	..	..	....	790
Haldimand	M	....	....	103	73	12	7	5	5	4	....	..	..	..	..	..	....	209
	F	....	62	108	19	9	2	3	2	4	.....	..	..	..	..	..	....	209
	Total	209	62	211	92	21	9	8	7	8	....	..	..	..	..	..	....	418
Halton	M	....	....	49	51	17	7	8	2	2	1	1	..	..	..	..	....	138
	F	....	26	73	20	12	4	1	....	....	1	..	..	1	..	..	....	138
	Total	138	26	122	71	29	11	9	2	2	2	1	..	1	..	..	....	276
Hastings	M	.....	14	162	142	49	38	9	8	10	3	1	..	..	..	..	14	450
	F	....	126	197	64	27	8	9	4	1	....	..	..	..	..	..	14	450
	Total	450	140	359	206	76	46	18	12	11	3	1	..	..	..	..	28	900
Huron	M	....	1	180	188	54	21	11	9	6	2	..	3	1	..	..	1	477
	F	....	97	258	80	21	5	6	4	3	2	1	..	..	..	..	....	477
	Total	477	98	438	268	75	26	17	13	9	4	1	3	1	..	..	1	954
Kent	M	....	6	145	115	38	12	9	9	4	....	3	..	..	..	..	....	341
	F	....	102	149	52	23	8	2	3	....	2	..	..	..	..	..	....	341
	Total	341	108	294	167	61	20	11	12	4	2	3	..	..	..	..	....	682
Lambton	M	....	1	89	61	24	20	11	5	2	2	1	..	..	..	..	1	217
	F	....	49	106	39	10	7	1	2	1	....	..	..	..	..	..	2	217
	Total	217	50	195	100	34	27	12	7	3	2	1	..	..	..	..	3	434
Lanark	M	....	5	71	86	30	14	9	3	2	1	1	1	..	..	..	2	225
	F	....	29	117	51	14	5	2	3	2	....	..	..	..	..	..	2	225
	Total	225	34	188	137	44	19	11	6	4	1	1	1	..	..	..	4	450
Leeds and Grenville	M	....	9	122	99	55	16	11	5	5	3	8	..	1	1	..	16	351
	F	....	65	163	59	21	7	4	8	3	1	1	1	..	..	..	18	351
	Total	351	74	285	168	76	26	15	13	8	4	9	1	1	1	..	34	702

TABLE G.—Marriages by Ages.—*Continued.*

COUNTIES.	Sex.	No. of Couples.	Under 20.	20 and under 25.	25 and under 30.	30 and under 35.	35 and under 40.	40 and under 45.	45 and under 50.	50 and under 55.	55 and under 60.	60 and under 65.	65 and under 70.	70 and under 75.	75 and under 80.	Over 80.	Age not given.	Total.
Lennox and Addington..	M ..	....	4	86	63	21	21	6	....	1	4	..	3	..	1	..	1	211
	F ..	....	55	94	35	11	5	5	3	1	1	..	..	..	..	..	1	211
	Total	211	59	180	98	32	26	11	3	2	5	..	3	..	1	..	2	422
Lincoln.....	M ..	....	4	86	72	22	15	6	6	3	4	..	1	..	..	..	....	219
	F ..	....	45	101	44	13	6	3	4	2	....	..	..	..	..	..	1	219
	Total	219	49	187	116	35	21	9	10	5	4	..	1	..	..	..	1	438
Middlesex	M ..	....	6	227	227	111	42	15	22	13	6	4	..	2	1	..	2	678
	F ..	....	118	354	122	39	15	7	6	10	1	3	..	..	..	..	3	678
	Total	678	124	581	349	150	57	22	28	23	7	7	..	2	1	..	5	1356
Muskoka	M ..	....	....	19	18	9	4	2	1	....	....	..	2	..	..	..	4	59
	F ..	....	15	19	7	6	3	2	....	1	....	..	..	..	..	..	6	59
	Total	59	15	38	25	15	7	4	1	1	....	..	2	..	..	..	10	118
Norfolk	M ..	....	2	125	68	27	21	5	6	5	1	3	..	..	2	..	....	265
	F ..	....	71	125	33	18	4	6	4	....	2	2	..	..	..	..	....	265
	Total	265	73	250	101	45	25	11	10	5	3	5	..	..	2	..	.....	530
Northumberland and Durham	M ..	.....	9	241	208	70	18	22	7	8	4	2	3	3	..	..	4	569
	F ..	....	129	270	102	32	18	5	6	3	1	..	..	..	..	..	3	569
	Total	569	139	481	316	102	36	27	13	11	5	2	3	3	..	..	7	1138
Ontario	M ..	....	6	163	143	30	19	15	9	6	2	3	1	..	..	..	1	398
	F ..	....	86	195	72	18	15	6	2	2	1	1	..	..	..	..	....	398
	Total	398	92	358	215	48	34	21	11	8	3	4	1	..	..	..	1	796
Oxford	M ..	.....	3	137	148	45	26	9	11	3	4	1	..	..	..	..	.....	387
	F ..	....	74	193	80	15	8	6	5	2	3	..	..	..	..	..	1	387
	Total	387	77	330	228	60	34	15	16	5	7	1	..	..	..	..	1	774
Parry Sound.....	M ..	....	....	5	6	1	....	....	....	....	....	..	..	..	..	..	....	12
	F ..	....	8	2	2	....	....	.....	....	....	.....	..	..	..	..	..	....	12
	Total	12	8	7	8	1	....	....	....	....	....	..	..	..	..	..	....	24
Peel.....	M ..	....	....	69	93	30	13	5	2	2	1	1	..	..	..	..	....	216
	F ..	....	36	116	41	8	9	3	1	2	....	..	..	..	..	..	....	216
	Total	216	36	185	134	38	22	8	3	4	1	1	..	..	..	..	....	432

TABLE G.—Marriages by Ages.—*Continued.*

COUNTIES.	Sex.	No. of Couples.	Under 20.	20 and under 25.	25 and under 30.	30 and under 35.	35 and under 40.	40 and under 45.	45 and under 50.	50 and under 55.	55 and under 60.	60 and under 65.	65 and under 70.	70 and under 75.	75 and under 80.	Over 80.	Age not given.	Total.
Perth	M	....	2	155	139	33	18	9	7	4	3	3	..	..	..	..	....	373
	F	....	85	196	56	19	9	6	....	2	....	..	..	..	..	..	....	373
	Total	373	87	351	195	52	27	15	7	6	3	3	..	..	..	..	....	746
Peterborough	M	....	....	66	62	22	8	6	5	3	1	3	..	..	..	..	2	178
	F	....	34	95	24	12	4	2	1	4	....	..	..	..	..	..	2	178
	Total	178	34	161	86	34	12	8	6	7	1	3	..	..	..	..	4	356
Prescott and Russell	M	....	2	143	39	12	11	4	3	....	2	..	..	..	..	..	8	224
	F	....	77	110	20	6	2	3	....	....	....	..	..	..	..	..	6	224
	Total	224	79	253	59	18	13	7	3	....	2	..	..	..	..	..	14	448
Prince Edward	M	....	....	63	46	15	1	8	5	3	2	1	..	..	..	..	1	145
	F	....	41	66	19	13	3	1	1	....	....	..	..	..	..	..	1	145
	Total	145	41	129	65	28	4	9	6	3	2	1	..	..	..	..	2	290
Renfrew	M	....	....	69	69	28	7	7	2	2	....	..	..	..	..	..	1	185
	F	....	41	98	32	7	3	1	1	....	....	..	..	..	..	..	2	185
	Total	185	41	167	101	35	10	8	3	2	....	..	..	..	..	..	3	370
Simcoe	M	....	5	174	166	52	23	16	7	7	5	..	3	..	1	..	1	460
	F	....	119	234	64	15	11	5	6	2	....	2	..	..	..	..	2	460
	Total	460	124	408	230	67	34	21	13	9	5	2	3	..	1	..	3	920
Stormont, Dundas and Glengarry	M	....	5	157	121	56	27	17	9	5	8	..	..	..	..	..	18	423
	F	....	91	198	63	26	10	7	3	2	....	..	..	..	..	..	23	423
	Total	423	96	355	184	82	37	24	12	7	8	..	..	..	..	..	41	846
Thunder Bay	M	....	1	13	21	4	1	....	....	....	1	..	..	..	..	..	....	41
	F	....	11	16	12	2	....	....	....	....	....	..	..	..	..	..	....	41
	Total	41	12	29	33	6	1	....	....	....	1	..	..	..	..	..	....	82
Victoria	M	..	4	84	69	25	18	8	1	....	1	1	..	..	..	...	1	212
	F	....	48	112	24	13	11	2	2	....	....	..	..	..	..	..	....	212
	Total	212	52	196	93	38	29	10	3	....	1	1	..	..	..	..	1	424
Waterloo	M	....	2	186	104	26	13	7	5	5	....	1	1	1	1	1	1	354
	F	....	76	197	47	16	4	4	5	2	1	..	..	..	1	..	1	354
	Total	354	78	383	151	42	17	11	10	7	1	1	1	1	2	1	2	708

TABLE G.—Marriages by Ages.—*Concluded.*

COUNTIES.	Sex.	No. of Couples.	Under 20.	20 and under 25.	25 and under 30.	30 and under 35.	35 and under 40.	40 and under 45.	45 and under 50.	50 and under 55.	55 and under 60.	60 and under 65.	65 and under 70.	70 and under 75.	75 and under 80.	Over 80.	Age not given.	Total.
Welland	M ..	....	1	71	64	26	8	4	4	5	1	5	1	1	..	..	....	191
	F ..	....	46	91	26	12	3	4	4	2	....	3	..	..	..	..	....	191
	Total	191	47	162	90	38	11	8	8	7	1	8	1	1	..	..	....	382
Wellington	M ..	....	3	205	203	58	28	17	5	3	2	2	3	1	..	..	....	530
	F ..	....	127	274	79	27	10	4	6	....	1	1	1	..	..	..	....	530
	Total	530	130	479	282	85	38	21	11	3	3	3	4	1	..	..	....	1060
Wentworth	M ..	....	10	174	118	50	22	20	12	10	2	1	1	..	..	..	....	420
	F ..	....	91	200	75	23	17	6	2	5	....	..	..	..	..	..	1	420
	Total	420	101	374	193	73	39	26	14	15	2	1	1	..	..	..	1	840
York	M ..	....	5	403	367	174	74	31	26	11	7	8	5	3	..	..	5	1119
	F ..	....	186	544	231	83	37	12	10	5	2	3	..	..	..	..	6	1119
	Total	1119	191	947	598	257	111	43	36	16	9	11	5	3	..	..	11	2238
Total Males	....	....	149	4846	4293	1469	697	378	245	157	85	67	36	20	10	2	96	12550
Total Females	....	....	2869	6126	2056	681	299	157	122	70	26	23	3	2	1	..	115	12550
Grand Total	....	12550	3018	10972	6349	2150	996	535	367	227	111	90	39	22	11	2	211	25100

Of the 12550 men who were married in 1876—149 were minors, therefore one in every 84 who married was a minor; 4846 married between 20 and 25; 4293 between 25 and 30; 2166 between 30 and 40; 623 between 40 and 50; 242 between 50 and 60; and 135 were married over the age of 60. 1·1 per cent. were minors; 38 per cent. were under 25; 34 per cent. under 30; 17 per cent. under 40, and 7 per cent. were over 40. Of the females 2869 or 22·8 per cent. were married under 20; 6126 or nearly 49 per cent. between 20 and 25; 2056 or 16 per cent. between 25 and 30; 980 or nearly 8 per cent. between 30 and 40; 381 or 3 per cent. were over 40.

The ages of 96 males and 115 females were not obtained at the time of marriage, that is to say one man in 130 of the marriages of males failed to give his age, or the clergyman neglected to obtain it, and in the same way one in every 109 women married is returned without the age being recorded.

The greatest number of marriages of minors among the males in any one place was returned for the County of Hastings, Carlton next.

The County of York shows the highest number of females married under the age of 20, being 186; the next in order is Northumberland and Durham, 129; Wellington records 127, and Hastings 126.

The marriages of minors appears to be steadily on the increase in other countries as well as in Ontario.

The per centage of the whole number of persons married according to ages is as follows :—

Under 20 years, ..	Males 1·10 per cent.		Females 22·86
From 20 to 25 years	" 38·61	"	" 48·81
" 25 " 30 "	" 34·20	"	" 16·38
" 30 " 35 "	" 11·70	"	" 5·42
" 35 " 40 "	" 5·55	"	" 2·38
" 40 " 45 "	" 3·00	"	" 1·25
" 45 " 50 "	" 1·95	"	" ·97
" 50 " 55 "	" 1·25	"	" ·55
" 55 " 60 "	" ·67	"	" ·20
" 60 " 65 "	" ·53	"	" ·18
" 65 " 70 "	" ·28	"	" ·02
" 70 " 75 "	" ·15	"	" ·01
" 75 " 80 "	" ·07	"	" ·00
Over 80 "	" ·01	"	" ·00

The following remarkable instances of persons marrying in old age are given hereunder. The great dissimilarity in the ages of many of them when married is also shown.

In the County of	Waterloo	a man aged	86	married a woman of		76	years.
"	Carlton	"	80	"	"	50	"
"	Middlesex	"	78	"	"	57	"
"	Lennox	"	76	"	"	40	"
"	Leeds	"	76	"	"	65	"
"	Essex	"	75	"	"	22	"
"	"	"	75	"	"	63	"
"	Frontenac	"	75	"	"	67	"
"	Simcoe	"	75	"	"	45	"
"	Waterloo	"	75	"	"	54	"
"	Northumberland & Durham	"	74	"	"	39	"
"	Elgin	"	73	"	"	49	"
"	York	"	73	"	"	55	"
"	Middlesex	"	72	"	"	53	"
"	Wellington	"	72	"	"	62	"
"	York	"	72	"	"	52	"
"	Grey	"	72	"	"	64	"
"	Leeds	"	72	"	"	57	"
"	Elgin	"	72	"	"	63	"
"	Brant	"	71	"	"	51	"
"	Essex	"	71	"	"	62	"
"	Northumberland & Durham	"	71	"	"	41	"

The oldest man, aged 86, married the oldest lady, 76. They were the most patriarchal couple joined by Hymen, their united ages being 162, or an average of 81 years each. Five boys of the age of 17 joined their fortunes to girls of the respective ages of 15, 16, 18, 19 and 20. Seven girls aged 14 married men from 20 to 26 years, and 22 girls were married at the age of 15.

DEATHS.

The total number of Deaths registered in 1876 was 18,623—9,746 males, and 8,877 females; an increase of 9,273 over the number returned for 1875.

This increase in the returns is very largely from the cities and county towns; in the proportion, *i. e.* of 162 per cent. in them, to 99 per cent. for the whole Province. That a larger proportion of the deaths which occur is registered in the towns than in the more thinly populated districts, is evident. For example, twenty of these centres, with an aggregate population of 266,154, or 14 per cent. of that of the entire Province, as estimated, return 4,738 deaths, or nearly 25 per cent. of the total number registered. That the cities and towns give much the fullest returns is made still more apparent on observing that five of the largest cities, except Ottawa (the returns from which are not full), with an aggregate population of 148,186, less than 8 per cent. of that of the Province, return 3,240 deaths, or over 17 per cent. of the total returned.

It must not be inferred from this that the death rate is much larger in urban than in rural districts, for such an inference would be manifestly incorrect. Two, at least, of the ten highest causes of death, diphtheria and typhoid fever, the former being the third highest cause given (see Table), are known to be rather diseases of rural or suburban places, than of the cities; and moreover, insanitary conditions or causes of death are probably as prevalent in the aggregate in the former as in the latter.

The causes of the larger proportionate returns from the cities are most probably the greater facility there for registering, and the greater interest taken by the people in the matter of registration. In the townships and more thinly populated districts many are obliged to travel a long distance in order to reach the registrar.

This seems to suggest the necessity for awakening a greater interest in the subject of registration in the townships, and impressing upon the people the importance of it, and also, if possible, to increase the facilities for registering.

TABLE H.—Deaths by Months.

COUNTIES.	Sex.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Not stated.	Totals.
Algoma	M	3	1	....	3	4	4	6	1	1	4	2	1	....	30
	F	2	1	2	4	....	6	2	2	3	....	2	.....	1	25
	Total	5	2	2	7	4	10	8	3	4	4	4	1	1	55
Brant	M	11	16	20	16	20	13	12	23	21	11	19	17	....	199
	F	8	19	13	16	14	16	13	16	11	14	17	15	1	173
	Total	19	35	33	32	34	29	25	39	32	25	36	32	1	372
Bruce	M	16	15	18	30	24	15	21	15	20	20	12	21	....	227
	F	10	12	27	22	18	15	20	24	15	18	15	13	....	209
	Total	26	27	45	52	42	30	41	39	35	38	27	34	....	436
Carleton	M	25	24	21	17	30	21	30	26	16	11	19	13	2	258
	F	11	21	17	29	11	9	23	24	14	18	16	17	1	211
	Total	36	45	41	46	41	30	53	50	30	29	35	30	3	469
Elgin	M	6	18	17	12	7	14	12	10	13	10	10	14	15	158
	F	7	16	13	24	8	3	8	10	18	11	8	6	14	146
	Total	13	34	30	36	15	17	20	20	31	21	18	20	29	304

TABLE H.—Deaths by Months.—*Continued.*

COUNTIES.	Sex.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Not stated.	Totals.
Essex	M	19	18	23	27	15	17	25	21	24	18	14	10	5	236
	F	9	11	23	10	11	15	15	31	20	13	15	11	1	185
	Total	28	29	46	37	26	32	40	52	44	31	29	21	6	421
Frontenac	M	51	22	22	15	31	19	19	34	19	18	9	23	....	282
	F	44	26	28	33	34	16	23	17	13	11	9	13	....	267
	Total	95	48	50	48	65	35	42	51	32	29	18	36	....	549
Grey	M	17	26	26	14	28	23	26	17	10	18	13	18	3	239
	F	19	12	17	22	26	11	18	19	20	17	16	18	....	215
	Total	36	38	43	36	54	34	44	36	30	35	29	36	3	454
Haldimand	M	4	9	16	9	8	4	6	14	17	10	5	17	1	120
	F	13	9	7	10	17	7	4	9	8	5	7	10	....	106
	Total	17	18	23	19	25	11	10	23	25	15	12	27	1	226
Halton	M	10	15	6	17	10	5	12	15	12	6	9	10	2	129
	F	9	7	15	16	5	5	8	18	7	9	8	11	....	118
	Total	19	22	21	33	15	10	20	33	19	15	17	21	2	247
Hastings	M	18	23	31	33	26	14	20	24	26	32	18	20	6	291
	F	22	27	28	40	33	19	17	31	32	25	16	32	2	24
	Total	40	50	59	73	59	33	37	55	58	57	34	52	8	15
Huron	M	22	33	35	34	23	26	31	35	28	25	23	31	....	346
	F	29	28	35	35	27	22	22	34	24	22	22	19	....	319
	Total	51	61	70	69	50	48	53	69	52	47	45	50	....	665
Kent	M	15	23	28	29	18	13	22	19	11	11	16	13	7	225
	F	14	16	28	26	18	11	10	22	14	11	10	18	2	200
	Total	29	39	56	55	36	24	32	41	25	22	26	31	9	425
Lambton	M	9	13	18	12	6	10	15	16	18	7	9	14	5	152
	F	9	17	12	10	17	7	7	19	17	7	10	8	4	144
	Total	18	30	30	22	23	17	22	35	35	14	19	22	9	296
Lanark	M	10	12	9	12	16	14	14	12	8	6	10	11	1	135
	F	8	12	15	16	8	6	13	14	10	5	13	16	....	126
	Total	10	24	24	28	24	20	27	26	18	11	23	27	1	271
Leeds and Grenville	M	39	25	24	37	37	14	21	35	24	26	18	13	....	307
	F	24	15	28	25	17	20	21	26	16	17	17	22	....	248
	Total	63	40	52	62	54	34	42	61	40	37	35	35	....	555

TABLE H.—Deaths by Months.—*Continued.*

COUNTIES.	Sex.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Not stated.	Totals.
Lennox and Addington..	M ...	17	9	24	11	12	9	7	7	9	10	8	9	....	132
	F	7	14	9	11	13	7	9	19	12	5	13	13	....	132
	Total	24	23	33	22	25	16	16	26	21	15	21	22	....	264
Lincoln	M ...	20	32	22	22	18	10	19	20	19	18	11	23	....	234
	F	16	24	24	19	17	16	16	23	34	22	13	22	....	246
	Total	36	56	46	41	35	26	35	43	53	40	24	45	....	480
Middlesex	M ...	41	66	57	57	45	45	41	62	51	42	29	30	....	566
	F	40	52	52	40	25	29	28	44	40	38	29	27	....	444
	Total	81	118	109	97	70	74	69	106	91	80	58	57	....	1010
Muskoka	M ...	3	7	2	5	3	5	7	3	3	6	12	4	....	60
	F	6	3	2	8	5	4	2	7	5	2	4	5	....	53
	Total	9	10	4	13	8	9	9	10	8	8	16	9	....	113
Norfolk	M ...	13	16	14	11	9	11	17	16	28	18	13	23	...	189
	F	5	18	9	14	9	14	10	12	17	14	11	19	....	152
	Total	18	34	23	25	18	25	27	28	45	32	24	42	....	341
Northumberland and Durham	M ...	30	28	43	31	26	25	31	26	37	26	28	32	1	364
	F	16	24	33	25	29	19	28	26	41	32	19	31	....	323
	Total	46	52	76	56	55	44	59	52	78	58	47	63	1	687
Ontario	M ...	31	21	36	31	18	22	22	35	19	21	24	15	.	295
	F	25	32	29	26	22	13	20	18	21	25	18	12	....	261
	Total	56	53	65	57	40	35	42	53	40	46	42	27	....	556
Oxford	M ...	33	38	26	18	12	19	22	23	13	20	17	28	. ..	269
	F	33	24	41	23	16	14	20	23	26	17	19	15	....	271
	Total	66	62	67	41	28	33	42	46	39	37	36	43	. ..	540
Parry Sound.....	M ...	.....	.....	1	3	3	2	2	1	2	1	.....	1	....	16
	F	1	1	1	3	4	..	1	1	. ..	2	1	. ..	..	15
	Total	1	1	2	6	7	2	3	2	2	3	1	1	.	31
Peel.....	M ...	14	14	24	18	14	18	14	13	19	15	13	14	. .	190
	F	9	14	8	11	5	6	12	16	18	11	6	9	.	125
	Total	23	28	32	29	19	24	26	29	37	26	19	23	...	315
Perth	M ...	14	16	21	16	17	18	17	17	18	13	11	19	...	200
	F	14	7	19	20	22	11	15	20	18	19	24	17		206
	Total	28	23	40	36	39	29	32	37	36	32	38	36		406

TABLE H.—Deaths by Months.—*Continued.*

COUNTIES.	Sex.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Not stated.	Totals.
Peterborough	M	12	22	17	11	14	8	9	17	14	6	7	5	....	142
	F	4	10	11	4	9	11	5	14	8	6	9	7	....	98
	Total	16	32	28	15	23	19	14	31	22	12	16	12	....	240
Prescott and Russell	M	24	15	16	16	13	10	16	4	11	2	5	11	....	143
	F	19	13	12	12	15	6	9	11	10	3	5	11	....	126
	Total	43	28	28	28	28	16	25	15	21	5	10	22	....	269
Prince Edward	M	5	13	16	12	10	10	10	10	13	11	3	10	....	123
	F	10	10	11	13	10	11	5	9	12	6	7	6	....	110
	Total	15	23	27	25	20	21	15	19	25	17	10	16	....	233
Renfrew	M	15	9	14	11	12	11	14	17	13	6	16	21	....	159
	F	11	14	12	23	9	8	11	15	14	11	9	14	....	151
	Total	26	23	26	34	21	19	25	32	27	17	25	35	....	310
Simcoe	M	41	43	41	25	21	22	26	31	32	17	14	17	....	330
	F	22	38	32	46	30	20	32	19	23	20	21	20	....	323
	Total	63	81	73	71	51	42	58	50	55	37	35	37	....	653
Stormont, Dundas and Glengarry	M	33	24	33	30	25	31	26	43	22	27	18	20	....	332
	F	32	26	37	26	21	12	23	29	22	21	26	25	....	300
	Total	65	50	70	56	46	43	49	72	44	48	44	45	....	632
Thunder Bay	M	2	1	....	2	1	1	1	4	5	2	1	3	....	23
	F	....	1	....	1	1	1	....	....	3	....	.....	.....	....	7
	Total	2	2	....	3	2	2	1	4	8	2	1	3	....	30
Victoria	M	12	18	10	10	11	11	13	6	12	7	12	16	....	138
	F	12	9	9	12	13	5	12	17	9	6	12	15	....	131
	Total	24	27	19	22	24	16	25	23	21	13	24	31	....	269
Waterloo	M	24	20	29	18	17	21	20	28	17	27	19	22	....	262
	F	21	20	22	14	12	18	28	25	14	24	22	17	1	238
	Total	45	40	51	32	29	39	48	53	31	51	41	39	1	500
Welland	M	14	12	15	20	21	15	19	20	9	16	15	10	....	186
	F	19	14	8	17	21	13	12	23	24	10	17	13	....	191
	Total	33	26	23	37	42	28	31	43	33	26	32	23	....	377
Wellington	M	30	27	28	29	23	19	21	28	23	26	29	24	....	307
	F	30	28	23	32	21	23	26	50	38	37	24	41	....	373
	Total	60	55	51	61	44	42	47	78	61	63	53	65	....	680

TABLE H.—Deaths by Months.—*Concluded.*

COUNTIES.	Sex.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Not stated.	Totals.
Wentworth	M	44	53	36	44	33	41	44	41	64	47	26	36	....	509
	F	46	34	36	32	40	28	56	63	56	38	31	32	....	492
	Total	90	87	72	76	73	69	100	104	120	85	57	68	....	1001
York	M	97	92	108	111	100	93	124	148	110	104	86	70	....	1243
	F	95	78	123	99	93	68	94	140	85	68	70	70	....	1083
	Total	192	170	231	210	193	161	218	288	195	172	156	140	....	2326
Total Males		844	889	950	879	782	703	834	937	831	715	626	708	48	9746
Total Females		731	757	871	869	725	545	698	940	792	640	611	671	27	8877
Grand Total		1575	1646	1821	1748	1507	1248	1532	1877	1623	1355	1237	1379	75	18623

Order of Deaths by Months.

	Males.	Females.	Total.
August	937	940	1877
March	950	871	1821
April	879	869	1748
February	889	757	1646
September	831	792	1623
January	844	731	1575
July	834	698	1552
May	782	725	1507
December	708	671	1379
October	715	640	1355
June	703	545	1248
November	626	611	1237
Date of death omitted	48	27	75
Total	9746	8877	18623

Quarterly Return of Deaths.

	Males.	Females.	Total.
Quarter ending March 31st	2683	2359	5042
" June 30th	2364	2139	4503
" September 30th	2602	2430	5032
" December 31st	2049	1922	3971
Date of death not given	48	27	75
Total	9746	8877	18623

The highest mortality is in the first quarter of the year. England also returns the highest number of deaths during the same period, Nova Scotia in the third quarter, and Massachusetts in the fourth quarter.

The month most fatal to life, as regards the total returns, appears to have been August; though the largest number of males died during the month of March. In November, the smallest number of males died; while June was the least fatal month to

females. Of the total, over 50 per cent. more died in August than in November, while nearly 75 per cent. more females died in August than in June. The death-rate among young children was very large during the latter part of August.

The marked rises and falls in the death-rate involve highly-interesting questions as to the causes of them. August in 1876 was an unusually dry month, and the temperature was high—conditions most favourable to the rapid evolution of organic emanations. In such conditions, the level of the subsoil water would be reduced to the lowest point, exposing a series of decomposing, fermenting foci; and the large amount of evaporation caused by the heat would be highly favourable to the diffusion of the poisonous effluvia; to the ordinary poisonous effects of which young children are much more susceptible than adults. The spread of epidemics is favoured by such conditions. The evil is not so much the result of the climatic conditions, *per se*, as of the effects of the conditions upon refuse organic, often excrementitious, matter exposed to it by the carelessness, indifference, or ignorance of the people.

Of the 18,623 deaths registered, 9,746 or 52·3 per cent. were of males, and 8,877 or 47·7 per cent. of females, being in the proportion of 109 males to 100 females. The excess in this particular is more marked in those dying under the age of one year—the numbers being 2,150 males to 1,690 females. This is somewhat remarkable, though it is similar in other countries. During only three periods in the lives of females does their mortality exceed that of males, viz., from 10 years to 20 years, 20 to 30, and 30 to 40 years. This may be accounted for by those periods being the most critical in their existence; the two latter especially being the child-bearing periods, and the first that in which the development of puberty takes place. In that between 20 and 30 nearly 25 per cent. more females died than males. In Nova Scotia and in England the death-rate in females between the ages of 15 and 40 does not much exceed that of males of the same age.

May not the habits of life of mothers—dress, "society"—be largely responsible for this high death-rate among male infants and child-bearing women? These causes tend to produce malformations or deformities in mothers which greatly increase the risks of child-bearing. Then the average size of male infants, especially that of the head, is greater than that of females, and hence the former suffer more during labour; and in malformed mothers, the risk to the infant reaches its maximum.

TABLE I.—Deaths by Ages.

COUNTIES.	Sex.	1 Under 1 year.	2 1 to 5.	3 5 to 10.	4 10 to 20.	5 20 to 30.	6 30 to 40.	7 40 to 50.	8 50 to 60.	9 60 to 70.	10 70 to 80.	11 80 to 90.	12 90 and upwards.	13 Not given.	Total.
Algoma	M	3	7	3	2	2	1	3	2	1	2	2	1	1	30
	F	2	8	....	2	4	2	3	....	....	3	1	....	....	25
	Total	5	15	3	4	6	3	6	2	1	5	3	1	1	55
Brant	M	43	16	8	17	20	9	11	19	14	17	14	2	9	199
	F	29	18	9	9	20	14	14	6	16	17	15	3	3	173
	Total	72	34	17	26	40	23	25	25	30	34	29	5	12	372

TABLE I.—Deaths by Ages.—*Continued.*

COUNTIES.	Sex.	1 Under 1 year.	2 1 to 5.	3 5 to 10.	4 10 to 20.	5 20 to 30.	6 30 to 40.	7 40 to 50.	8 50 to 60.	9 60 to 70.	10 70 to 80.	11 80 to 90.	12 90 and upwards.	13 Not given.	Total.
Bruce	M	51	27	15	15	16	20	9	16	18	21	10	1	8	227
	F	38	27	7	21	21	18	6	10	27	19	7	4	4	209
	Total	89	54	22	36	37	38	15	26	45	40	17	5	12	436
Carleton	M	56	42	8	13	15	21	16	18	21	26	14	4	4	258
	F	41	32	11	13	21	22	12	13	14	13	11	1	7	211
	Total	97	74	19	26	36	43	28	31	35	39	25	5	11	469
Elgin	M	26	13	5	14	11	4	7	18	15	14	8	....	23	158
	F	16	15	4	16	19	18	10	5	6	5	8	2	22	146
	Total	42	28	9	30	30	22	17	23	21	19	16	2	45	304
Essex	M	69	38	7	17	16	11	16	13	10	18	17	2	11	236
	F	48	24	12	26	7	16	9	9	10	11	5	4	4	185
	Total	108	62	19	43	23	27	25	22	20	29	22	6	15	421
Frontenac	M	56	40	10	8	16	19	23	26	25	35	16	1	7	282
	F	40	24	15	27	33	29	13	16	16	26	12	5	11	267
	Total	96	64	25	35	49	48	36	42	41	61	28	6	18	549
Grey	M	45	24	12	20	16	20	12	14	17	32	15	4	8	239
	F	39	26	16	17	20	15	11	16	20	12	13	6	4	215
	Total	84	50	28	37	36	35	23	30	37	44	28	10	12	454
Haldimand	M	20	22	7	8	8	8	5	6	17	10	6	1	2	120
	F	18	10	8	5	12	7	8	7	10	10	8	2	1	106
	Total	38	32	15	13	20	15	13	13	27	20	14	3	3	226
Halton	M	17	28	4	4	10	10	8	11	11	15	8	2	1	129
	F	17	23	10	7	9	7	7	4	7	17	6	2	2	118
	Total	31	51	14	11	19	17	15	15	18	32	14	4	3	247
Hastings	M	33	59	16	20	22	13	20	14	32	31	12	1	15	291
	F	22	66	17	39	41	26	18	18	19	27	12	4	12	324
	Total	55	125	33	59	66	39	38	32	51	61	24	5	27	615
Huron	M	63	47	19	27	41	23	23	16	27	31	15	5	9	346
	F	71	45	16	33	43	29	12	16	22	13	10	4	5	319
	Total	134	92	35	60	84	52	35	32	49	44	25	9	14	665

TABLE I.—Deaths by Ages.—*Continued.*

COUNTIES.	Sex.	1 Under 1 year.	2 1 to 5.	3 5 to 10.	4 10 to 20.	5 20 to 30.	6 30 to 40.	7 40 to 50.	8 50 to 60.	9 60 to 70.	10 70 to 80.	11 80 to 90.	12 90 and upwards.	13 Not given.	Total.
Kent	M	44	42	19	16	20	11	4	12	12	22	10	1	12	225
	F	32	33	20	15	20	15	11	7	13	11	13	2	8	200
	Total	76	75	39	31	40	26	15	19	25	33	23	3	20	425
Lambton	M	39	15	2	8	11	2	8	13	16	18	6	4	10	152
	F	29	17	4	12	12	17	12	10	9	8	6	2	6	144
	Total	68	32	6	20	23	19	20	23	25	26	12	6	16	296
Lanark	M	25	11	3	9	9	9	14	14	10	11	13	5	2	135
	F	19	13	9	10	21	8	9	8	8	11	10	6	4	136
	Total	44	24	12	19	30	17	23	22	18	22	23	11	6	271
Leeds and Grenville	M	49	30	11	13	33	23	24	15	35	41	25	2	6	307
	F	35	17	10	14	43	21	21	13	21	21	20	3	9	248
	Total	84	47	21	27	76	44	45	28	56	62	45	5	15	555
Lennox and Addington	M	19	15	12	11	12	9	9	7	8	15	9	4	2	132
	F	18	13	6	10	15	10	6	12	6	11	17	1	7	132
	Total	37	28	18	21	27	19	15	19	14	26	26	5	9	264
Lincoln	M	46	37	16	13	17	12	15	16	14	28	6	....	14	234
	F	46	36	16	21	25	16	11	15	13	25	12	3	7	246
	Total	92	73	32	34	42	28	26	31	27	53	18	3	21	480
Middlesex	M	109	44	26	33	66	49	45	32	55	68	21	7	11	566
	F	88	48	16	47	45	37	29	31	44	33	10	8	8	444
	Total	197	92	42	80	111	86	74	63	99	101	31	15	19	1010
Muskoka	M	14	7	4	6	3	3	6	3	5	4	1	....	4	60
	F	9	6	6	6	4	5	4	2	2	5	.....	....	4	53
	Total	23	13	10	12	7	8	10	5	7	9	1	....	8	113
Norfolk	M	46	31	14	8	5	12	12	10	23	15	10	1	2	189
	F	26	23	11	15	12	24	8	10	11	8	3	.....	1	152
	Total	72	54	25	23	17	36	20	20	34	23	13	1	3	341
Northumberland and Durham.	M	60	42	17	26	26	27	13	27	30	44	24	10	18	364
	F	52	37	15	38	38	23	21	9	22	31	13	4	20	323
	Total	112	79	32	64	64	50	34	36	52	75	37	14	38	687

TABLE I.—Deaths by Ages.—*Continued.*

COUNTIES.	Sex.	1 Under 1 year.	2 1 to 5.	3 5 to 10.	4 10 to 20.	5 20 to 30.	6 30 to 40.	7 40 to 50.	8 50 to 60.	9 60 to 70.	10 70 to 80.	11 80 to 90.	12 90 and upwards.	13 Not given.	Total.
Ontario	M	75	32	10	12	22	14	17	23	21	34	20	3	12	295
	F	57	28	14	27	22	13	16	15	23	24	14	2	6	261
	Total	132	60	24	39	44	27	33	38	44	58	34	5	18	556
Oxford	M	37	44	25	24	20	10	15	14	20	27	14	4	15	269
	F	40	40	20	19	32	24	15	15	15	22	11	3	15	271
	Total	77	84	45	43	52	34	30	29	35	49	25	7	30	540
Parry Sound	M	6	1	....	1	4	....	2	....	1	....	....	....	1	16
	F	3	3	2	2	1	....	....	1	2	1	....	....	.....	15
	Total	9	4	2	3	5	....	2	1	3	1	....	....	1	31
Peel	M	32	25	11	10	15	14	12	8	15	28	6	4	10	190
	F	22	12	7	12	12	10	6	2	8	19	9	....	6	126
	Total	54	37	18	22	27	24	18	10	23	47	15	4	16	315
Perth	M	55	24	5	11	19	13	14	15	14	16	8	3	3	200
	F	47	23	12	11	25	16	19	16	8	13	9	3	4	206
	Total	102	47	17	22	44	29	33	31	22	29	17	6	7	406
Peterborough	M	23	14	6	8	11	10	5	12	9	13	15	1	15	142
	F	21	11	4	5	14	7	5	4	5	6	5	1	10	98
	Total	44	25	10	13	25	17	10	16	14	19	20	2	25	240
Prescott and Russell	M	55	23	9	3	15	5	3	7	2	7	14	....	2	145
	F	33	19	6	8	8	9	7	3	7	10	11	3	.....	124
	Total	88	42	15	11	23	14	10	10	9	17	25	3	2	269
Prince Edward	M	17	15	9	3	3	13	4	14	14	20	8	1	2	123
	F	9	13	4	13	13	6	9	6	8	13	7	....	9	110
	Total	26	28	13	16	16	19	13	20	22	33	15	1	11	233
Renfrew	M	48	34	13	8	16	7	6	4	7	10	3	1	2	159
	F	35	37	15	10	15	8	6	4	7	9	1	3	1	151
	Total	83	71	28	18	31	15	12	8	14	19	4	4	3	310
Simcoe	M	54	48	21	31	30	17	17	20	21	23	14	9	25	330
	F	64	48	30	31	16	30	15	20	11	17	13	3	25	323
	Total	118	96	51	62	46	47	32	40	32	40	27	12	50	653

TABLE I.—Deaths by Ages.—*Concluded.*

COUNTIES.	Sex.	1 Under 1 year.	2 1 to 5.	3 5 to 10.	4 10 to 20.	5 20 to 30.	6 30 to 40	7 40 to 50.	8 50 to 60.	9 60 to 70.	10 70 to 80.	11 80 to 90.	12 90 and upwards.	13 Not given.	Total.
Stormont, Dundas and Glengarry.	M....	70	30	17	17	22	20	14	23	21	47	38	8	5	332
	F	40	32	13	30	38	22	23	16	24	26	27	4	5	300
	Total	110	62	30	47	60	42	37	39	45	73	65	12	10	632
Thunder Bay	M....	6	3	....	3	3	2	3	....	1	....	....	....	2	23
	F	1	2	1	....	1	....	2	....	....	....	....	....	.....	7
	Total	7	5	1	3	4	2	5	....	1	....	....	....	2	30
Victoria.....	M....	29	12	11	14	13	10	6	4	13	14	7	3	2	138
	F	27	15	3	14	18	9	8	6	6	10	6	3	6	131
	Total	56	27	14	28	31	19	14	10	19	24	13	6	8	269
Waterloo	M....	71	31	16	17	11	14	12	15	21	32	17	2	3	262
	F	48	28	9	16	27	21	21	12	15	24	10	2	5	238
	Total	119	59	25	33	38	35	33	27	36	56	27	4	8	500
Welland.....	M....	37	19	12	10	16	13	10	11	11	23	13	1	10	186
	F	38	32	15	16	18	13	12	10	8	13	10	1	5	191
	Total	75	51	27	26	34	26	22	21	19	36	23	2	15	377
Wellington	M....	74	51	29	17	16	16	15	14	21	22	12	7	13	307
	F	87	53	20	39	36	25	20	12	28	20	13	8	16	373
	Total	161	104	49	56	52	37	35	26	49	42	25	15	29	680
Wentworth	M....	132	72	29	26	34	35	34	39	32	37	14	3	22	509
	F	121	84	20	29	48	32	24	26	29	36	22	4	17	492
	Total	253	156	49	55	82	67	58	65	61	73	36	7	39	1001
York	M....	405	148	64	70	89	85	82	85	74	64	32	8	37	1243
	F	266	167	54	63	110	82	79	64	57	57	40	6	38	1083
	Total	671	315	118	133	199	167	161	149	131	121	72	14	75	2326
Total Males	.....	2150	1263	525	593	754	614	574	630	734	938	497	116	358	9746
Total Females	.....	1694	1208	487	748	942	702	542	469	577	657	420	112	319	8877
Grand Total....	.....	3844	2471	1012	1341	1696	1316	1116	1099	1311	1595	917	228	677	18623

	English	Irish.	Scotch.	German.	French.	Swiss.	American.	Canadian.	Not known.	Total.
Of the deaths in column 9	268	395	219	51	7	1	88	254	28	1311
" " 10	297	506	256	56	6	7	122	302	43	1595
" " 11	140	292	184	27	3	1	110	140	20	917
" " 12	33	90	43	3	1	1	27	24	6	228
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Of the whole number of deaths recorded, deducting the 677, the ages of which were not given, 20·6 per cent. (3,844) died under the age of one year. In England the proportion of deaths under one year is about 24 per cent. In 18 large towns there, in 1872 it was 27·6 per cent. In Boston it is 25 per cent. In Philadelphia, 22. In New York, 30 per cent. On the other hand, the returns from Rhode Island show for the ten years, 1863–72, a death-rate under one year of 18 per cent. of the total deaths, and from 1852 to 1863 it was 17·6. In Geneva, in Switzerland, it is only about 15 per cent.

Of the total number of deaths (deducting 677), about 35 per cent. (6,315) were children of five years and under. This is about the same as in Rhode Island. In England about 40 per cent. die at a like age; and in Michigan, 42 per cent.

Of the total number whose ages at death were recorded, 8,668, over 48 per cent., died at 20 and under. In England and in Rhode Island, the average returns show about the same proportion of deaths at and under the same age.

About 15 per cent. of the deaths (2,740) were of those who survived 70 years; while only about 14 per cent. of deaths recorded in England and in Rhode Island are of those who exceed the age of 70. But of these 2,740 who survived the age of 70, 888 were Irish, 483 Scotch, 470 English, and 466 Canadians; the others being Americans, Germans, &c. The cause of this is probably that the Irish, Scotch, and English are more familiar with the practice of registration in the mother country, where it has been in operation many years, and are more alive to its importance, and consequently a larger proportion of them are registered. Even though the largest proportion of those who survived 70 were foreigners, it shows well for the healthiness of the climate of Ontario; nevertheless, in the longevity of parents—hereditary—lies the foundation for the longevity of the children.

Of the unrecorded deaths which occurred in the Province in 1876, it seems reasonable to suppose that the largest proportion were those of young children; the deaths of these being the least likely to come under the notice of the registrar, and the registering of them being the most likely to be neglected by parents or friends.

If this were the case, the proportion of those surviving the age of 20 years and of 70 years would be reduced, and the proportion dying before one year and five years would be proportionately increased.

CAUSES OF DEATH.

TABLE J.—CAUSES OF DEATH

COUNTIES.	Sex.	All Causes.	Specified Causes.	Classes. 1 Zymotic.	2 Constitutional.	3 Local.	4 Developmental.	5 Violent.	Order I. Miasmatic.	Enthetic.	Dietic.	Parasitic.	Order II Diathetic.	Tubercular.
Algoma	M	30	20	5	5	4	3	13	4	....	....	1	....	5
	F	25	19	4	7	4	4	6	4	....	....	....	1	6
	Total	55	39	9	12	8	7	19	8	....	....	1	1	11
Brant	M	199	191	41	42	68	22	26	41	....	....	....	13	29
	F	173	161	34	47	46	29	17	33	....	....	1	18	29
	Total	372	352	75	89	114	51	43	74	....	....	1	31	58
Bruce	M	227	212	25	46	86	27	43	22	....	2	1	11	35
	F	209	193	36	49	54	37	33	34	....	....	2	14	35
	Total	436	405	61	95	140	64	76	56	....	2	3	25	70
Carleton	M	258	247	63	37	75	50	33	61	....	1	1	14	23
	F	211	196	46	37	60	43	25	44	....	....	2	10	27
	Total	469	443	109	74	135	93	58	105	....	1	3	24	50
Elgin	M	158	138	35	24	54	18	27	33	....	2	....	5	19
	F	146	123	31	29	38	18	30	30	1	....	....	5	24
	Total	304	261	66	53	92	36	57	63	1	2	....	10	43
Essex	M	236	220	60	37	62	36	41	59	....	1	.....	7	30
	F	185	171	49	33	52	29	22	48	....	....	1	12	21
	Total	421	391	109	70	114	65	63	107	....	1	1	19	51
Frontenac	M	282	259	60	30	101	53	38	56	1	2	1	5	25
	F	267	243	46	67	74	45	35	45	....	....	1	16	51
	Total	549	502	106	97	175	98	73	101	1	2	2	21	76
Grey	M	239	226	51	42	86	28	32	50	....	....	1	16	26
	F	215	203	49	32	70	38	26	47	....	....	2	18	14
	Total	454	429	100	74	156	66	58	97	....	....	3	34	40
Haldimand	M	120	117	27	29	43	9	12	26	....	....	1	7	22
	F	106	106	24	23	32	22	5	24	....	....	....	4	19
	Total	226	223	51	52	75	31	17	50	....	.....	1	11	41

CLASSIFIED ARRANGEMENT.—*Continued.*

Order III.								Order IV.				Order V.								
Nervous System.	Organs of Circulation.	Respiratory Organs.	Digestive Organs.	Urinary Organs.	Generative Organs.	Organs of Locomotion.	Integumentary System.	Developmental Diseases of Children.	Developmental Diseases of Women.	Developmental Diseases of Old People.	Diseases of Nutrition.	Accident or Negligence.	Homicide.	Suicide.	Execution.	Violent Deaths not Classed.	Sudden Deaths.	Causes not Specified.	Erroneously Specified.	Sunstroke.
1	.....	2	.....	1	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	10	3	.....
3	.....	.....	1	.....	.....	.....	.....	.....	1	3	.....	.....	.....	.....	.....	.....	.....	6	.....	.....
4	.....	2	1	1	.....	.....	.....	.....	1	6	.....	.....	.....	.....	.....	.....	.....	16	3	.....
23	6	18	14	5	.....	.....	2	5	.....	17	.....	8	.....	2	.....	2	.....	8	6	.....
12	6	13	12	1	.....	.....	2	2	2	25	.....	2	.....	.....	.....	1	.....	12	2	.....
35	12	31	26	6	.....	.....	4	7	2	42	.....	10	.....	2	.....	3	.....	20	8	.....
25	7	24	27	2	.....	.....	1	12	.....	11	4	16	.....	.....	.....	.....	.....	15	12	.....
14	4	22	12	1	1	.....	.....	8	4	16	9	5	.....	.....	.....	.....	.....	16	12	.....
39	11	46	39	3	1	.....	1	20	4	27	13	21	.....	.....	.....	.....	.....	31	24	.....
26	11	19	15	4	.....	.....	.....	19	.....	27	4	8	.....	.....	.....	2	1	11	11	.....
16	4	25	13	2	.....	.....	.....	16	6	17	4	3	.....	.....	.....	.....	.....	15	7	.....
42	15	44	28	6	.....	.....	.....	35	6	44	8	11	.....	.....	.....	2	1	26	18	.....
19	8	14	13	.....	.....	.....	.....	4	.....	14	.....	2	.....	.....	.....	1	1	20	3	.....
12	8	5	12	.....	.....	.....	1	2	5	10	1	1	.....	.....	.....	2	.....	23	4	.....
31	16	19	25	.....	.....	.....	1	6	5	24	1	3	.....	.....	.....	3	1	43	7	.....
20	4	24	9	5	.....	.....	.....	11	.....	24	1	13	1	.....	.....	3	3	16	5	.....
9	7	22	12	1	.....	.....	1	14	4	11	.....	5	.....	.....	.....	.....	.....	14	3	.....
29	11	46	21	6	.....	.....	1	25	4	35	1	18	1	.....	.....	3	3	30	8	.....
28	16	38	13	5	.....	.....	1	19	.....	25	9	13	.....	.....	.....	.....	.....	23	2	.....
25	7	26	10	.....	.....	.....	6	11	9	21	4	7	.....	.....	.....	.....	.....	24	4	.....
53	23	64	23	5	.....	.....	7	30	9	46	13	20	.....	.....	.....	.....	.....	47	6	.....
18	4	35	24	4	.....	.....	1	6	.....	21	1	8	.....	3	.....	1	.....	13	7	.....
25	6	27	10	1	.....	.....	1	2	2	30	4	8	.....	.....	.....	1	2	12	3	.....
43	10	62	34	5	.....	.....	2	8	2	51	5	16	.....	3	.....	2	2	25	10	.....
16	6	14	4	3	.....	.....	.....	1	.....	8	.....	3	.....	.....	1	1	2	3	1	1
12	3	9	8	.....	.....	.....	.....	7	2	12	1	4	.....	.....	.....	.....	.....	.....	1	.....
28	9	23	12	3	.....	.....	.....	8	2	20	1	7	.....	.....	1	1	2	3	2	1

TABLE J.—CAUSES OF DEATH

COUNTIES.	Sex.	All Causes.	Specified Causes.	Classes. 1 Zymotic.	2 Constitutional.	3 Local.	4 Developmental.	5 Violent.	Order I. Miasmatic.	Enthetic.	Dietic.	Parasitic.	Order II Diathetic.	Tubercular.
Halton	M	129	123	31	23	43	16	16	31	.....	....	....	6	17
	F	118	115	45	22	35	13	3	45	....	....	....	9	13
	Total	247	238	76	45	78	29	19	76	....	....	....	15	30
Hastings	M	291	269	53	49	97	41	51	49	....	1	3	15	34
	F	324	303	74	85	90	48	27	70	....	1	3	14	71
	Total	615	572	127	134	187	89	78	119	....	2	6	29	105
Huron	M	346	322	82	51	104	35	74	81	....	....	1	14	37
	F	319	293	86	74	78	37	44	85	....	1	....	13	61
	Total	665	615	168	125	182	72	118	166	.....	1	1	27	98
Kent	M	225	204	59	37	63	27	39	58	.....	....	1	8	29
	F	200	184	55	38	55	29	23	54	....	1	....	13	25
	Total	425	388	114	75	118	56	62	112	....	1	1	21	54
Lambton	M	152	142	29	26	61	14	22	29	.....	.....	....	9	17
	F	144	130	26	32	44	23	19	26	.....	.....	.. ..	6	26
	Total	296	272	55	58	105	37	41	55	.....	. ...	....	15	43
Lanark	M	135	127	26	26	55	16	12	26	.. .	....	....	6	20
	F	136	128	17	39	45	20	15	17	....	....	....	7	32
	Total	271	255	43	65	100	36	27	43	....	....	....	13	52
Leeds and Grenville	M	307	291	52	72	96	40	47	50	....	2	....	21	51
	F	248	235	47	79	58	36	28	46	....	....	1	18	61
	Total	555	526	99	151	154	76	75	96	.....	2	1	39	112
Lennox and Addington	M	132	120	25	31	32	23	21	24	....	1	....	6	25
	F	132	115	25	30	33	22	22	24	....	....	1	8	22
	Total	264	235	50	61	65	45	43	48	....	1	1	14	47
Lincoln	M	234	231	74	29	84	29	18	72	1	1	....	10	19
	F	246	238	71	55	70	36	14	71	....	....	....	12	43
	Total	480	469	145	84	154	65	32	143	1	1	....	22	62

CLASSIFIED ARRANGEMENT.—*Continued.*

Order III.								Order IV.				Order V.								
Nervous System.	Organs of Circulation.	Respiratory Organs.	Digestive Organs.	Urinary Organs.	Generative Organs.	Organs of Locomotion.	Integumentary System.	Developmental Diseases of Children.	Developmental Diseases of Women.	Developmental Diseases of Old People.	Diseases of Nutrition.	Accident or Negligence.	Homicide.	Suicide.	Execution.	Violent Deaths not Classed.	Sudden Deaths.	Causes not Specified.	Erroneously Specified.	Sunstroke.
20	1	15	5	2	.....	....	.....	4	.....	11	1	5	1	1	.....	.....	.. ...	6	3	.....
13	4	12	5	1	.....	.....	.....	4	1	8	.....	.....	.....	.....	.....	.....	....	3	.....	.....
33	5	27	10	3	.....	.....	.....	8	1	19	1	5	1	1	.....	.....	.....	9	3	....
32	9	43	11	2	.....	.....	.... .	16	.. ...	23	2	12	.....	1	.....	1	6	22	9	.....
42	11	21	13	1	.....	.....	2	20	4	24	.....	3	.....	.....	.....	.....	.....	21	3	....
74	20	64	24	3	.....	.....	2	36	4	47	2	15	.....	1	.....	1	6	43	12	.....
32	10	34	17	8	2	.....	1	13	.....	18	4	23	.....	2	.....	. ....	2	24	21	2
20	7	30	18	1	.....	.....	2	10	7	15	5	4	.....	.....	.....	.....	1	26	11	2
52	17	64	35	9	2	.....	3	23	7	33	9	27	.....	2	.. ...	.....	3	50	32	4
17	11	21	12	2	. ....	.....	.....	12	.....	14	1	12	.....	1	.....	2	2	21	.....	1
15	7	21	9	... ..	... ..	.....	3	7	6	16	.....	5	.....	.....	.....	.....	.....	16	2	... ..
32	18	42	21	2	.....	.....	3	19	6	30	1	17	.....	1	.....	2	2	37	2	1
13	5	18	22	3	.....	.....	.....	2	.....	12	.....	7	.....	1	.....	.....	2	10	1	1
16	4	9	13	2	.....	.....	.....	6	7	10	.....	1	.....	.....	.....	.....	.....	14	4	.....
29	9	27	35	5	.....	.....	...	8	7	22	.....	8	.....	1	.....	.....	2	24	5	1
13	2	19	11	10	.....	.....	.....	5	.....	10	1	1	.....	.....	.....	.....	2	8	.....	1
11	4	13	12	4	. ...	.....	1	3	3	14	.....	3	.....	.....	.....	.....	2	8	2	.....
24	6	32	23	14	.....	.....	1	8	3	24	1	4	.....	.....	.....	.....	4	16	2	1
27	10	30	18	10	.....	.....	1	12	.....	24	4	16	.....	1	.....	2	2	16	10	.....
15	10	21	10	1	.....	.....	1	4	7	21	4	1	.....	.....	.....	2	1	13	10	1
42	20	51	28	11	.....	....	2	16	7	45	8	17	.....	1	.....	4	3	29	20	1
6	5	14	6	1	.....	.....	.....	6	.....	17	.....	5	.....	1	....	.....	2	12	1	.....
10	6	9	8	.....	.....	.....	....	2	3	17	.....	1	.....	1	.....	.....	1	17	2	....
16	11	23	14	1	.....	.....	.....	8	3	34	.....	6	.....	2	.....	.....	3	29	3	.....
23	15	23	16	6	.....	.....	1	15	.....	14	.....	10	.....	.....	.....	.....	1	3	3	1
21	9	22	15	2	.....	.....	1	12	3	20	1	4	.....	.....	... .	.....	.....	8	1	1
44	24	45	31	8	....	.....	2	27	3	34	1	14	.....	.....	.....	.....	1	11	4	2

TABLE J.—CAUSES OF DEATH

COUNTIES.	Sex.	All Causes.	Specified Causes.	Classes. 1 Zymotic.	2 Constitutional.	3 Local.	4 Developmental.	5 Violent.	Order I. Miasmatic.	Enthetic.	Dietic.	Parasitic.	Order II Diathetic.	Tubercular.
Middlesex	M	566	554	84	109	214	81	78	83	....	1	....	25	84
	F	444	426	87	100	165	55	37	84	1	....	2	34	66
	Total	1010	980	171	209	379	136	115	167	1	1	2	59	150
Muskoka	M	60	54	12	8	18	7	15	11	....	....	1	3	5
	F	53	48	17	6	14	9	7	17	....	....	....	3	3
	Total	113	102	29	14	32	16	22	28	....	....	1	6	8
Norfolk	M	189	184	66	29	70	13	11	65	....	1	....	9	20
	F	152	152	51	33	49	8	11	51	....	....	....	11	22
	Total	341	336	117	62	119	21	22	116	....	1	....	20	42
Northumberland and Durham.	M	364	349	73	61	131	55	44	68	....	3	2	18	43
	F	323	303	78	64	111	38	32	77	....	....	1	22	42
	Total	687	652	151	125	242	93	76	145	....	3	3	40	85
Ontario	M	295	267	56	49	102	33	55	56	....	....	....	12	37
	F	261	241	55	61	87	27	31	55	....	....	....	18	43
	Total	556	508	111	110	189	60	86	111	....	....	....	30	80
Oxford	M	269	251	102	35	75	15	42	100	....	2	....	6	29
	F	271	249	93	53	71	21	33	93	....	....	....	11	42
	Total	540	500	195	88	146	36	75	193	....	2	....	17	71
Parry Sound	M	16	12	4	1	4	0	7	4	....	....	....	1	....
	F	15	14	6	2	3	1	3	6	....	....	....	....	2
	Total	31	26	10	3	7	1	10	10	....	....	....	1	2
Peel	M	190	178	57	28	48	27	30	52	....	4	1	14	14
	F	125	114	38	25	34	14	14	38	....	....	....	10	15
	Total	315	292	95	53	82	41	44	90	....	4	1	24	29
Perth	M	200	187	25	37	81	30	27	24	....	1	....	6	31
	F	206	203	54	33	78	35	6	54	....	....	....	12	21
	Total	406	390	79	70	159	65	33	78	....	1	....	18	52

CLASSIFIED ARRANGEMENT.—*Continued.*

Order III.								Order IV.				Order V.								
Nervous System.	Organs of Circulation.	Respiratory Organs.	Digestive Organs.	Urinary Organs.	Generative Organs.	Organs of Locomotion.	Integumentary System	Developmental Diseases of Children.	Developmental Diseases of Women.	Developmental Diseases of Old People.	Diseases of Nutrition.	Accident or Negligence.	Homicide.	Suicide.	Execution.	Violent Deaths not Classed.	Sudden Deaths.	Cause not Specified.	Erroneously Specified.	Sunstroke.
71	10	63	54	12	....	1	3	30	....	41	10	34	1	1	....	....	....	12	29	1
63	22	45	33	1	1	....	....	17	7	28	3	9	....	....	....	....	....	18	16	....
134	32	108	87	13	1	1	3	47	7	69	13	43	1	1	....	....	....	30	39	1
4	....	9	3	2	....	....	....	2	....	4	1	4	....	....	....	1	....	6	4	....
6	2	2	3	1	....	....	....	2	5	2	....	2	....	....	....	....	....	5	...	....
10	2	11	6	3	....	....	....	4	5	6	1	6	....	....	....	1	....	11	4	....
29	4	17	19	1	....	....	....	5	....	8	....	4	....	....	....	....	2	5	....	....
19	2	18	8	....	....	....	2	2	3	3	....	4	1	1	....	....	2	....	3	....
48	6	35	27	1	....	....	2	7	3	11	....	8	1	1	....	....	4	5	3	....
39	10	51	25	4	....	....	2	5	....	50	....	10	....	3	....	....	5	15	11	....
28	13	41	18	5	....	....	6	6	7	24	1	5	....	....	....	....	....	20	6	1
67	23	92	43	9	....	....	8	11	7	74	1	15	....	3	....	....	5	35	17	1
37	6	34	20	3	2	....	....	11	....	19	3	15	.....	2	....	.....	....	28	10	.....
26	7	29	21	3	....	1	.....	7	1	16	3	5	....	....	....	....	....	20	6	....
63	13	63	41	6	2	1	....	18	1	35	6	20	....	2	....	....	....	48	16	....
20	9	30	13	3	....	....	....	2	....	10	3	10	...	2	....	....	....	18	12	....
25	12	17	14	2	....	....	1	3	3	14	1	2	....	....	....	....	....	22	9	....
45	21	47	27	5	....	....	1	5	3	24	4	12	.....	2	....	....	....	40	21	....
.....	....	2	2	....	....	....	....	....	....	....	....	2	....	....	....	....	1	4	....	....
2	1	.....	....	....	....	....	....	....	....	1	....	2	....	....	....	....	....	1	....	....
2	1	2	2	....	....	....	....	....	....	1	....	4	....	....	....	....	1	5	....	....
9	2	18	15	4	....	....	....	5	....	21	1	9	....	1	....	1	1	12	6	....
13	....	16	3	2	....	....	....	1	3	10	....	1	....	1	....	....	....	11	1	....
22	2	34	18	6	....	....	....	6	3	31	1	10	....	2	....	1	1	23	7	....
22	7	30	19	1	....	....	2	10	....	18	2	7	....	2	....	....	4	13	1	....
26	14	21	14	2	....	....	1	9	8	18	....	2	....	....	....	1	....	3	....	....
48	21	51	33	3	....	....	3	19	8	36	2	9	....	2	....	1	4	16	1	....

TABLE J.—CAUSES OF DEATH

COUNTIES.	Sex.	All Causes.	Specified Causes.	Classes. 1 Zymotic.	2 Constitutional.	3 Local.	4 Developmental.	5 Violent.	Order I. Miasmatic.	Enthetic.	Dietic.	Parasitic.	Order II Diathetic.	Tubercular.
Peterborough	M	142	128	20	25	49	24	24	18	....	1	1	5	20
	F	98	90	20	22	25	15	16	19	....	....	1	2	20
	Total	240	218	40	47	74	39	40	37	.....	1	2	7	40
Prescott and Russell	M	143	121	33	21	29	29	31	33	....	....	....	3	18
	F	126	104	30	23	14	33	26	30	....	....	....	6	17
	Total	269	225	63	44	43	62	57	63	....	....	....	9	35
Prince Edward	M	123	114	27	20	45	16	15	26	....	1	....	5	15
	F	110	103	22	32	32	14	10	21	....	....	1	12	20
	Total	233	217	49	52	77	30	25	47	....	1	1	17	35
Renfrew	M	159	145	52	18	49	18	22	52	....	....	....	8	10
	F	151	141	52	19	42	21	17	51	....	....	1	9	10
	Total	310	286	104	37	91	39	39	103	....	....	1	17	20
Simcoe	M	330	311	82	49	100	44	55	77	....	2	3	11	38
	F	323	301	87	62	86	50	38	86	....	....	1	12	50
	Total	653	612	169	111	186	94	93	163	....	2	4	23	88
Stormont, Dundas and Glengarry.	M	332	286	56	44	100	57	75	56	....	....	....	12	32
	F	300	262	51	91	66	47	45	51	....	....	....	27	64
	Total	632	548	107	135	166	104	120	107	....	....	....	39	96
Thunder Bay	M	23	23	13	....	5	2	3	13	....	....	....	....	....
	F	7	7	3	1	2	1	....	3	....	....	....	....	1
	Total	30	30	16	1	7	3	3	16	....	....	....	....	1
Victoria	M	138	126	22	24	54	18	20	22	....	....	....	7	17
	F	131	116	24	19	44	25	19	24	....	....	....	2	17
	Total	269	242	46	43	98	43	39	46	....	....	....	9	34
Waterloo	M	262	258	55	41	94	45	27	53	....	2	....	13	28
	F	238	228	59	45	74	48	12	59	....	....	....	10	35
	Total	500	486	114	86	168	93	39	112	....	2	....	23	63

CLASSIFIED ARRANGEMENT.—*Continued.*

Order III.								Order IV.				Order V.								
Nervous System.	Organs of Circulation.	Respiratory Organs.	Digestive Organs.	Urinary Organs.	Generative Organs.	Organs of Locomotion.	Integumentary System.	Developmental Diseases of Children.	Developmental Diseases of Women.	Developmental Diseases of Old People.	Diseases of Nutrition.	Accident or Negligence.	Homicide.	Suicide.	Execution.	Violent Deaths not Classed.	Sudden Deaths.	Cause not Specified.	Erroneously Specified.	Sunstroke.
10	2	20	13	2	....	2	....	5	....	18	1	9	1	....	....	....	....	14	....	....
7	3	7	6	....	....	....	2	5	3	6	1	4	1	....	....	....	....	8	3	....
17	5	27	19	2	....	2	2	10	3	24	2	13	2	....	....	....	....	22	3	....
14	4	8	3	....	....	....	....	21	....	7	1	7	....	....	....	....	....	22	2	....
6	1	6	....	1	....	....	....	10	6	17	....	2	....	....	....	....	....	22	2	....
20	5	14	3	1	....	....	....	31	6	24	1	9	....	....	....	....	....	44	4	....
19	2	14	10	....	....	....	....	1	....	15	....	3	....	1	....	1	1	9	....	....
12	5	6	8	1	....	....	....	4	2	7	1	1	....	....	....	....	2	7	....	....
31	7	20	18	1	....	....	....	5	2	22	1	4	....	1	....	1	3	16	....	....
14	2	16	14	2	....	....	1	13	....	5	....	1	....	....	....	2	1	14	4	....
11	3	17	11	....	....	....	....	9	1	10	1	3	....	....	....	....	....	10	1	3
25	5	33	25	2	....	....	1	22	1	15	1	4	....	....	....	2	1	24	5	3
30	9	37	17	7	....	....	....	15	....	24	5	19	....	....	....	....	....	19	16	1
29	15	28	12	1	....	....	1	16	7	23	4	7	....	....	....	1	....	22	8	....
59	24	65	29	8	....	....	1	31	7	47	9	26	....	....	....	1	....	41	24	1
29	12	26	25	5	....	....	3	8	....	43	6	17	1	....	....	....	3	46	8	....
17	8	21	17	1	....	....	2	3	7	33	4	2	....	....	....	....	1	38	4	....
46	20	47	42	6	....	....	5	11	7	76	10	19	1	....	....	....	4	84	12	....
.....	1	2	2	....	....	....	....	2	....	....	....	2	....	....	....	....	1	....	....	....
.....	1	1	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....
.....	2	3	2	....	....	....	....	3	....	....	....	2	....	....	....	....	1	....	....	....
15	8	16	9	4	....	1	1	5	....	12	1	5	....	1	....	....	....	12	2	....
13	3	11	10	4	....	....	3	9	2	14	....	2	....	1	....	....	1	15	....	....
28	11	27	19	8	....	1	4	14	2	26	1	7	....	2	....	....	1	27	2	....
41	8	30	13	1	....	....	1	18	....	27	....	10	....	....	....	2	4	4	7	....
29	4	24	13	2	1	....	1	14	7	27	....	1	....	....	....	....	1	10	....	....
70	12	54	26	3	1	....	2	32	7	54	....	11	....	....	....	2	5	14	7	....

TABLE J—CAUSES OF DEATH

COUNTIES.	Sex.	All Causes.	Specified Causes.	Classes. 1 Zymotic.	2 Constitutional.	3 Local.	4 Developmental.	5 Violent.	Order I. Miasmatic.	Enthetic.	Dietic.	Parasitic.	Order II Diathetic.	Tubercular.
Welland	M	186	175	49	26	45	31	35	49	.....	.....	.....	6	20
	F	191	179	62	36	52	22	19	62	.....	.....	.....	8	28
	Total	377	354	111	62	97	53	54	111	.....	.....	.....	14	48
Wellington	M	307	290	87	39	107	37	37	87	.....	.....	.....	13	26
	F	373	348	111	49	122	50	41	111	.....	.....	.....	16	33
	Total	680	638	198	88	229	87	78	198	.....	.....	.....	29	59
Wentworth	M	509	498	143	77	196	47	46	142	.....	1	.....	16	61
	F	492	484	144	106	152	69	21	143	.....	1	.....	28	78
	Total	1001	982	287	183	348	116	67	285	.....	2	.....	44	139
York	M	1243	1219	303	189	457	178	105	282	7	7	7	41	148
	F	1083	1050	288	216	367	157	66	277	1	4	6	67	149
	Total	2326	2269	591	405	824	335	171	559	8	11	13	108	297
Total Males	.....	9746	9189	2219	1566	3287	1294	1369	2145	9	39	26	407	1159
Total Females	.....	8877	8319	2197	1876	2628	1289	898	2159	3	8	27	518	1358
Grand Total	.....	18623	17508	4416	3442	5915	2583	2267	4304	12	47	53	925	2517

CLASSIFIED ARRANGEMENT.—*Concluded.*

Order III.								Order IV.				Order V.								
Nervous System.	Organs of Circulation.	Respiratory Organs.	Digestive Organs.	Urinary Organs.	Generative Organs.	Organs of Locomotion.	Integumentary System.	Developmental Diseases of Children.	Developmental Diseases of Women.	Developmental Diseases of Old People.	Diseases of Nutrition.	Accident or Negligence.	Homicide.	Suicide.	Execution.	Violent Deaths not Classed.	Sudden Deaths.	Causes not Specified.	Erroneously Specified.	Sunstroke.
13	6	9	13	2	.....	.....	2	6	.....	20	5	19	.....	1	.....	.....	.....	11	3	1
15	9	13	12	.....	2	.....	1	3	5	12	2	3	.....	.....	.....	.....	4	12	.....	.....
28	15	22	25	2	2	.....	3	9	5	32	7	22	.....	1	.....	.....	4	23	3	1
34	9	34	21	7	.....	.....	2	17	.....	20	.....	10	.....	3	.....	3	2	17	2	.....
38	15	44	21	2	.....	.....	2	17	9	24	.....	4	.....	.....	.....	.....	1	25	11	.....
72	24	78	42	9	.....	.....	4	34	9	44	.....	14	.....	3	.....	3	3	42	13	.....
56	20	62	44	11	2	.....	1	24	.....	20	3	14	.....	4	1	.....	1	11	13	2
48	19	40	33	8	.....	.....	4	28	2	35	4	3	.....	.....	.....	.....	.....	8	10	.....
104	39	102	77	19	2	.....	5	52	2	55	7	17	.....	4	1	.....	1	19	23	2
161	37	157	75	21	....	1	5	113	.....	49	16	58	1	1	.....	.....	1	24	20	.....
127	31	138	49	12	2	1	7	76	13	62	6	14	.....	1	.....	.....	.....	33	17	1
288	68	295	124	33	2	2	12	189	13	111	22	72	1	2	.....	.....	1	57	37	1
1026	298	1090	666	165	6	5	31	480	.....	724	90	431	6	35	2	25	53	557	248	12
851	297	852	499	66	7	2	54	372	177	676	64	135	2	5	.....	8	19	558	162	9
1877	595	1942	1165	231	13	7	85	852	177	1400	154	566	8	40	2	33	72	1115	410	21

TABLE J.—CAUSES

COUNTIES.	Sex.	I.—1. Miasmatic.																
		1 Small Pox.	2 Measles.	3 Scarlatina.	4 Diphtheria.	5 Quinsy.	6 Croup.	7 Whooping Cough.	8 Infantile Fever.	9 Erysipelas.	10 Metria (Puerperal Fever).	11 Influenza.	12 Dysentery.	13 Diarrhœa.	14 Cholera Infantum.	15 Cholera.	16 Ague.	17 Remittent Fever.	18 Typhoid Fever.
Algoma	M	....	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....
	F	....	....	....	....	....	....	2	....	1	....	....	....	1	....	....	....	....	....
	Total	....	....	....	1	....	....	3	....	1	....	....	....	1	....	....	....	....	....
Brant	M	....	....	....	13	....	2	3	....	2	....	....	4	1	8	....	....	....	5
	F	....	....	....	20	....	2	1	....	....	....	....	....	5	2	....	....	....	1
	Total	....	....	....	33	....	4	4	....	2	....	....	4	6	10	....	....	....	6
Bruce	M	....	....	....	9	....	2	3	....	....	....	....	....	2	3	2	....	....	1
	F	....	....	....	11	....	3	1	5	....	....	....	2	7	1	....	....	....	2
	Total	....	....	....	20	....	5	4	5	....	....	....	2	9	4	2	....	....	3
Carleton	M	....	....	2	8	....	12	4	....	2	....	....	3	14	5	1	....	1	5
	F	....	....	1	6	....	9	2	....	2	1	....	2	8	4	....	....	....	5
	Total	....	....	3	14	....	21	6	....	4	1	....	5	22	9	1	....	1	10
Elgin	M	....	....	1	7	....	1	2	....	4	....	....	1	1	2	....	....	....	9
	F	....	....	1	8	....	4	1	....	2	....	....	4	1	2	....	....	....	2
	Total	....	....	2	15	....	5	3	....	6	....	....	5	2	4	....	....	....	11
Essex	M	1	1	....	12	1	7	5	....	1	....	....	1	8	2	1	....	4	6
	F	....	....	1	8	....	4	3	....	....	1	....	2	8	9	....	....	3	4
	Total	1	1	1	20	1	11	8	....	1	1	....	3	16	18	1	....	7	10
Frontenac	M	3	3	2	3	....	5	12	....	....	....	1	2	8	8	....	....	....	3
	F	1	3	....	....	1	7	14	....	....	2	3	2	1	3	....	....	....	3
	Total	4	6	2	3	1	12	26	....	....	2	4	4	9	11	....	....	....	6
Grey	M	1	....	1	10	....	8	11	....	....	....	....	1	3	2	1	....	1	4
	F	....	1	1	10	....	4	6	....	2	1	....	1	6	1	1	....	1	2
	Total	1	1	2	20	....	12	17	....	2	1	....	2	9	3	2	....	2	6
Haldimand	M	....	....	....	8	....	1	....	....	1	....	....	1	3	3	....	....	2	4
	F	....	....	....	9	....	2	3	....	....	....	....	....	....	1	....	....	....	5
	Total	....	....	....	17	....	3	3	....	1	....	....	1	3	4	....	....	2	9

OF DEATH.

			I.—2. Enthetic.			I.—3. Dietic.				I.—4. Parasitic.		II.—1. Diathetic.						II.—2. Tubercular.			
19	20	21	1	2	3	1	2	3	4	1	2	1	2	3	4	5	6	1	2	3	4
Rheumatism.	Fever.	Scarlet Fever.	Syphilis.	Stricture of Urethra.	Hydrophobia.	Privation.	Purpura and Scurvy.	Delirium Tremens.	Intemperance.	Thrush.	Worms.	Dropsy and Anæmia.	Cancer.	Noma (Cankers).	Abscess.	Mortification.	Hemorrhage.	Scrofula.	Tabes Mesenterica.	Phthisis, Consumption of the Lungs.	Hydrocephalus.
1	1	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	2	....	3	....
....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	6	....
1	1	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	2	....	9	....
1	1	1	....	....	....	....	....	....	....	....	....	3	7	....	....	....	3	1	....	27	1
....	1	1	....	....	....	....	....	....	....	1	....	3	9	....	1	....	5	....	....	29	....
1	2	2	....	....	....	....	....	....	....	1	....	6	16	....	1	....	8	1	....	56	1
....	....	....	....	....	....	....	....	....	2	1	....	4	4	....	2	1	....	....	....	30	5
2	....	....	....	....	....	....	....	....	....	1	1	9	4	....	1	....	....	1	....	30	4
2	....	....	....	....	....	....	....	....	2	2	1	13	8	....	3	1	....	1	....	60	9
....	1	3	....	....	....	....	....	....	1	1	....	5	5	....	2	....	2	....	....	20	3
1	3	....	....	....	....	....	....	....	....	....	2	5	3	....	1	....	1	....	....	27	....
1	4	3	....	....	....	....	....	....	1	1	2	10	8	....	3	....	3	....	....	47	3
....	3	2	....	....	....	....	....	1	1	....	....	1	3	....	1	....	....	....	....	17	2
1	2	2	....	....	1	....	....	....	....	....	....	3	2	....	....	....	....	....	....	22	2
1	5	4	....	....	1	....	....	1	1	....	....	4	5	....	1	....	....	....	....	39	4
2	....	....	....	....	....	....	1	....	....	....	....	6	....	....	....	....	1	....	....	26	4
3	1	1	....	....	....	....	....	....	....	....	1	2	7	....	1	....	2	....	....	18	3
5	1	1	....	....	....	....	1	....	....	....	1	8	7	....	1	....	3	....	....	44	7
3	3	....	....	1	....	....	1	....	1	....	1	1	2	....	1	1	....	1	....	22	2
2	....	3	....	....	....	....	....	....	....	1	....	8	6	1	....	1	....	....	....	50	1
5	3	3	....	1	....	....	1	....	1	1	1	9	8	1	1	2	....	1	....	72	3
4	2	1	....	....	....	....	....	....	....	....	1	10	5	....	1	....	....	....	....	26	....
3	7	....	....	....	....	....	....	....	....	1	1	8	7	....	3	....	....	....	....	13	1
7	9	1	....	....	....	....	....	....	....	1	2	18	12	....	4	....	....	....	....	39	1
2	1	....	....	....	....	....	....	....	....	....	1	2	....	1	3	....	1	....	....	20	2
....	2	2	....	....	....	....	....	....	....	....	....	2	2	....	....	....	....	....	....	17	2
2	3	2	....	....	....	....	....	....	....	....	1	4	2	1	3	....	1	....	....	37	4

TABLE J.—CAUSES

COUNTIES.	Sex.	I.—1. Miasmatic.																
		1 Small Pox.	2 Measles.	3 Scarlatina.	4 Diphtheria.	5 Quinsy.	6 Croup.	7 Whooping Cough.	8 Infantile Fever.	9 Erysipelas.	10 Metria (Puerperal Fever).	11 Influenza.	12 Dysentery.	13 Diarrhœa.	14 Cholera Infantum.	15 Cholera.	16 Ague.	17 Remittent Fever.	18 Typhoid Fever.
Halton	M	....	.....	.....	4	....	4	1	..	1	..	..	1	1	9	..	..	..	6
	F	....	1	3	13	1	2	2	..	1	..	..	3	4	7	..	..	1	6
	Total	....	1	3	17	1	6	3	..	2	..	..	4	5	16	..	..	1	12
Hastings	M	....	....	....	18	....	9	....	..	4	..	1	1	6	3	..	..	1	2
	F	....	....	....	26	1	9	....	..	4	2	..	....	4	3	..	..	..	7
	Total	....	....	....	44	1	18	....	..	8	2	1	1	10	6	..	..	1	9
Huron	M	..	....	....	19	....	18	3	..	5	..	1	9	4	3	..	..	1	12
	F	....	....	....	19	1	13	3	..	3	4	..	14	11	5	..	..	..	8
	Total	....	....	....	38	1	31	6	..	8	4	1	23	15	8	..	..	1	20
Kent	M	....	....	2	17	.....	9	4	..	3	..	..	3	7	2	1	..	1	2
	F	....	1	....	18	1	9	5	..	1	2	..	2	6	.....	..	..	..	....
	Total	....	1	2	35	1	18	9	..	4	2	..	5	13	2	1	..	1	2
Lambton	M	....	....	1	2	....	5	2	1	1	..	..	1	5	7	..	..	..	....
	F	....	....	1	2	....	4	2	..	....	1	..	2	4	4	..	..	1	2
	Total	....	....	2	4	....	9	4	1	1	1	..	3	10	11	..	..	1	2
Lanark	M	....	....	....	3	....	1	....	..	1	..	..	4	3	4	1	..	..	5
	F	....	....	....	3	....	3	2	..	....	..	1	....	4	1	..	..	1	2
	Total	....	....	....	6	....	4	2	..	1	..	1	4	7	5	1	..	1	7
Leeds and Grenville	M	1	....	....	4	....	6	2	..	2	..	..	1	6	12	1	..	..	9
	F	4	....	....	5	....	5	6	..	3	4	..	....	5	4	..	..	..	2
	Total	5	....	....	9	....	11	8	..	5	4	..	1	11	16	1	..	..	11
Lennox and Addington	M	....	....	.....	16	....	2	1	..	....	..	..	....	2	....	..	..	..	1
	F	....	....	....	11	....	1	....	..	1	..	..	....	3	1	..	..	..	1
	Total	....	....	....	27	....	3	1	..	1	..	..	....	5	1	..	..	..	2
Lincoln	M	4	....	5	3	....	4	2	..	1	..	..	2	9	7	..	..	..	10
	F	2	.....	8	8	..	4	3	..	1	2	..	4	1	15	1	..	..	8
	Total	6	....	13	11	....	8	5	..	2	2	..	6	10	22	1	..	..	18

OF DEATH.—*Continued.*

			I.—2. Enthetic.			I.—3. Dietic.				I.—4. Parasitic.		II.—1. Diathetic.						II.—2. Tubercular.			
19	20	21	1	2	3	1	2	3	4	1	2	1	2	3	4	5	6	1	2	3	4
Rheumatism.	Fever.	Scarlet Fever.	Syphilis.	Stricture of Urethra.	Hydrophobia.	Privation.	Purpura and Scurvy.	Delirium Tremens.	Intemperance.	Thrush.	Worms.	Dropsy and Anæmia.	Cancer.	Noma (Cankers).	Abscess.	Mortification.	Hemorrhage.	Scrofula.	Tabes Mesenterica.	Phthisis, Consumption of the Lungs.	Hydrocephalus.
....	....	4	....	....	....	....	....	....	....	....	....	2	3	....	1	....	....	2	....	15	....
1	....	....	....	....	....	....	....	....	....	....	....	1	8	....	....	....	....	....	....	13	....
1	..	4	....	....	....	.....	....	....	....	....	....	3	11	....	1	....	....	2	....	28	....
....	2	2	....	....	....	....	....	1	....	....	3	5	5	2	....	1	2	....	....	31	3
7	2	5	...	....	....	....	..	....	1	....	3	4	8	....	....	....	2	....	....	67	4
7	4	7	....	....	....	....	....	1	1	....	6	9	13	2	....	1	4	....	....	98	7
5	1	....	....	....	.....	....	....	....	....	....	1	5	6	....	3	....	....	1	2	31	3
2	2	....	....	....	....	....	1	....	....	....	....	9	2	....	1	1	....	1	....	49	11
7	3	....	....	....	..	....	1	....	.....	....	1	14	8	....	4	1	....	2	2	80	14
....	2	5	....	....	....	....	....	....	....	....	1	4	1	1	2	....	....	2	....	24	3
3	5	1	....	....	....	....	....	1	....	....	....	2	8	....	1	1	1	....	....	25	....
3	7	6	.....	....	....	....	....	1	....	.....	1	6	9	1	3	1	1	2	....	49	3
....	2	1	....	....	....	....	....	....	....	....	....	1	4	....	1	1	2	....	....	15	2
2	....	1	....	....	....	....	....	....	....	....	....	2	1	....	....	....	3	....	....	24	2
2	2	2	....	....	....	....	....	....	....	....	....	3	5	....	1	1	5	....	....	39	4
1	1	2	....	....	....	....	....	....	....	....	....	2	4	....	....	....	....	1	....	17	2
....	....	....	....	....	....	....	....	....	....	....	....	1	4	....	....	....	2	....	....	30	2
1	1	2	....	....	....	....	....	....	....	....	....	3	8	....	.....	....	2	1	....	47	4
1	2	3	....	....	....	1	....	1	....	.....	....	9	4	1	5	....	2	1	1	47	2
4	2	2	....	.....	....	....	....	....	....	.....	1	10	7	....	....	....	1	.....	....	57	4
5	4	5	....	....	....	1	....	1	....	....	1	19	11	1	5	....	3	1	1	104	6
....	2	....	....	....	....	....	....	1	.....	....	....	2	1	....	2	1	...	....	....	21	4
3	1	2	.....	....	....	....	....	....	.....	....	1	4	3	....	....	....	1	....	....	20	2
3	3	2	....	....	....	....	.....	1	....	....	1	6	4	....	2	1	1	....	....	41	6
3	2	20	1	....	....	....	....	....	1	....	....	6	2	1	1	....	....	....	....	13	6
2	1	11	....	....	....	....	....	....	....	....	....	6	5	....	....	....	1	....	....	41	2
5	3	31	1	....	....	....	....	....	1	....	....	12	7	1	1	....	1	....	....	54	8
			4								49										

TABLE J.—CAUSES

COUNTIES.	Sex.	I.—1. Miasmatic.																
		1 Small Pox.	2 Measles.	3 Scarlatina.	4 Diphtheria.	5 Quinsy.	6 Croup.	7 Whooping Cough.	8 Infantile Fever.	9 Erysipelas.	10 Metria (Puerperal Fever).	11 Influenza.	12 Dysentery.	13 Diarrhœa.	14 Cholera Infantum.	15 Cholera.	16 Ague.	17 Remittent Fever.	18 Typhoid Fever.
Middlesex	M	....	....	....	5	1	6	6	..	1	..	..	5	24	2	3	..	1	16
	F	....	....	....	5	....	7	3	..	1	6	..	6	23	6	1	1	..	13
	Total	....	....	....	10	1	13	9	..	2	6	..	11	47	8	4	1	1	29
Muskoka	M	....	....	1	3	....	2	....	..	....	....	....	1	....	1	..	..	..	2
	F	....	1	3	4	....	1	....	..	....	1	..	1	....	....	..	..	..	2
	Total	....	1	4	7	....	3	....	..	....	1	..	2	....	1	..	..	..	4
Norfolk	M	....	....	....	21	....	5	....	..	2	..	..	1	3	8	1	..	1	11
	F	....	....	2	17	....	3	1	..	1	..	..	2	4	4	1	..	1	5
	Total	....	....	2	38	....	8	1	..	3	..	..	3	7	12	2	..	2	16
Northumberland and Durham	M	....	....	....	17	....	4	7	1	3	..	..	3	10	4	1	..	2	7
	F	....	....	1	21	....	4	11	..	6	1	..	1	12	4	..	..	2	9
	Total	....	....	1	38	....	8	18	1	9	1	..	4	22	8	1	..	4	16
Ontario	M	.....	1	....	10	....	5	7	..	1	..	1	4	9	2	3	..	..	6
	F	....	1	....	8	....	6	8	..	1	3	1	3	7	2	4	..	2	5
	Total	....	2	....	18	....	11	15	..	2	3	2	7	16	4	7	..	2	11
Oxford	M	....	1	....	50	1	9	1	..	3	..	4	....	9	1	..	..	2	11
	F	....	1	....	46	....	6	3	..	6	2	1	1	8	2	..	..	1	7
	Total	....	2	....	96	1	15	4	..	9	2	5	1	17	3	..	..	3	18
Parry Sound	M	....	....	....	1	....	....	2	..	....	....	....	....	....	....	..	..	..	1
	F	....	....	....	3	....	1	2	..	....	....	....	....	....	....	..	..	..	....
	Total	....	....	....	4	....	1	4	..	....	....	....	....	....	....	..	..	..	1
Peel	M	....	....	2	14	1	3	6	..	2	..	1	....	2	3	..	1	1	8
	F	....	....	1	5	1	....	3	..	3	1	..	1	5	5	..	..	1	3
	Total	....	....	3	19	2	3	9	..	5	1	1	1	7	8	..	1	2	11
Perth	M	....	....	....	4	....	3	4	..	1	..	..	....	1	2	2	..	..	4
	F	1	....	....	13	....	8	6	..	3	..	..	1	3	7	2	..	3	5
	Total	1	....	....	17	....	11	10	..	4	..	..	1	4	9	4	..	3	9

OF DEATH.—*Continued.*

			I.—2. Enthetic.			I.—3. Dietic.				I.—4. Parasitic.		II.—1. Diathetic.						II.—2. Tubercular.			
19	20	21	1	2	3	1	2	3	4	1	2	1	2	3	4	5	6	1	2	3	4
Rheumatism.	Fever.	Scarlet Fever.	Syphilis.	Stricture of Urethra.	Hydrophobia.	Privation.	Purpura and Scurvy.	Delirium Tremens.	Intemperance.	Thrush.	Worms.	Dropsy and Anæmia.	Cancer.	Noma (Caukers).	Abscess.	Mortification.	Hemorrhage.	Scrofula.	Tabes Mesenterica.	Phthisis, Consumption of the Lungs.	Hydrocephalus.
5	4	4	....	....	....	....	....	1	....	....	....	12	8	1	2	....	2	3	....	77	4
1	6	5	1	....	....	....	....	....	....	1	1	13	13	....	2	....	6	....	1	61	4
6	10	9	1	....	....	....	....	1	....	1	1	25	21	1	4	....	8	3	1	138	8
....	....	1	....	....	....	....	....	....	....	....	1	3	....	....	....	....	....	....	....	5	....
....	....	4	....	....	....	....	....	....	....	....	....	2	1	....	....	....	....	1	....	2	....
....	....	5	....	....	....	....	....	....	....	....	1	5	1	....	....	....	....	1	....	7	....
1	2	9	....	....	....	....	....	....	1	....	....	9	....	....	....	....	....	2	....	16	2
....	2	8	....	....	....	....	....	....	....	....	....	6	4	....	....	....	1	1	....	21	....
1	4	17	....	....	....	....	....	....	1	....	....	15	4	....	....	....	1	3	....	37	2
6	1	2	....	....	....	....	....	1	2	2	....	8	7	1	1	....	1	...	....	37	
3	1	1	....	....	....	....	....	....	....	1	....	11	4	1	3	....			....	40	....
9	2	3	....	....	....	....	....	1	2	3	....	19	11	2	4	....	4	2	....	77	6
3	2	2	....	....	....	....	....	....	....	....	....	6	2	....	2	1	1	1	1	30	5
1	1	2	....	....	....	....	....	....	....	....	....	8	7	1	....	....	2	....	1	36	6
4	3	4	....	....	....	....	....	....	....	....	....	14	9	1	2	1	3	1	2	66	11
2	5	1	....	....	....	....	....	2	....	....	....	2	....	1	3	....	....	....	....	28	1
6	2	1	....	....	....	....	....	....	....	....	....	5	3	1	....	1	1	....	....	36	6
8	7	2	....	....	....	....	....	2	....	....	....	7	3	2	3	1	1	....	....	64	7
....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....
....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	2	....
2	2	4	....	....	....	....	....	1	3	....	1	4	5	....	3	....	2	....	1	12	1
1	....	8	....	....	....	....	....	....	....	....	....	3	5	....	1	....	1	....	....	15	....
3	2	12	....	....	....	....	....	1	3	....	1	7	10	....	4	....	3	.....	1	27	1
....	3	....	....	....	....	....	....	....	1	....	....	6	....	....	....	....	....	....	....	27	4
....	1	1	....	....	....	....	....	....	....	....	....	3	5	....	2	....	2	....	....	20	1
....	4	1	....	....	....	....	....	....	1	....	....	9	5	.....	2	....	2	....	....	47	5

TABLE J.—CAUSES

COUNTIES.	Sex.	I.—1. Miasmatic.																
		1 Small Pox.	2 Measles.	3 Scarlatina.	4 Diphtheria.	5 Quinsy.	6 Croup.	7 Whooping Cough.	8 Infantile Fever.	9 Erysipelas.	10 Metria (Puerperal Fever).	11 Influenza.	12 Dysentery.	13 Diarrhœa.	14 Cholera Infantum.	15 Cholera.	16 Ague.	17 Remittent Fever.	18 Typhoid Fever.
Peterborough	M	....	....	....	1	....	2	....	..	....	..	..	1	9	1	..	1	..	1
	F	....	2	....	....	....	2	6	..	1	1	1	....	4	....	..	....	..	....
	Total	....	2	....	1	....	4	6	..	1	1	1	1	13	1	..	1	..	1
Prescott and Russell	M	....	....	1	1	....	13	1	..	....	..	2	....	1	4	..	....	..	....
	F	....	1	4	1	....	8	....	..	....	1	..	....	1	2	2	....	..	1
	Total	....	1	5	2	....	21	1	..	....	1	2	....	2	6	2	....	..	1
Prince Edward	M	....	....	5	1	....	1	....	..	1	..	..	1	1	1	..	..	1	1
	F	....	....	2	1	....	1	....	..	1	..	..	....	2	1	..	..	1	1
	Total	....	....	7	2	....	2	....	..	2	..	..	1	3	2	..	..	2	2
Renfrew	M	....	2	1	7	....	11	1	..	....	..	..	....	7	3	2	..	1	1
	F	1	....	....	9	....	4	....	..	1	1	..	....	3	2	..	..	..	3
	Total	1	2	1	16	....	15	1	..	1	1	..	....	10	5	2	..	1	4
Simcoe	M	....	....	2	15	....	5	4	..	1	..	1	5	9	2	2	..	1	6
	F	....	....	3	16	....	4	7	..	3	2	..	1	6	1	1	..	2	6
	Total	....	....	5	31	....	9	21	..	4	2	1	6	15	3	3	..	3	12
Stormont, Dundas and Glengarry	M	2	....	2	6	....	6	3	..	5	..	3	2	6	6	2	..	..	7
	F	3	....	....	8	....	5	6	..	2	2	1	3	5	2	1	..	..	5
	Total	5	....	2	14	....	11	9	..	7	2	4	5	11	8	3	..	..	12
Thunder Bay	M	....	....	....	....	....	1	....	..	....	..	..	....	3	4	..	..	..	5
	F	....	....	....	....	....	....	....	..	....	..	..	....	1	....	..	..	..	1
	Total	....	....	....	....	....	1	....	..	....	..	..	....	4	4	..	..	..	6
Victoria	M	....	....	1	5	....	2	3	..	....	..	..	....	2	4	1	..	..	1
	F	....	....	....	6	....	1	4	..	....	..	..	1	2	2	..	..	1	4
	Total	....	....	1	11	....	3	7	..	....	..	..	1	4	6	1	..	1	5
Waterloo	M	....	....	....	6	1	12	6	..	1	..	..	....	2	10	..	..	3	9
	F	....	4	....	10	1	8	6	..	2	6	..	1	2	3	..	..	1	12
	Total	....	4	....	16	2	20	12	..	3	6	..	1	4	13	..	..	4	21

OF DEATH.—*Continued.*

			I.—2. Enthetic.			I.—3. Dietic.				I. 4. Parasitic.		II.—1. Diathetic.						II.—2. Tubercular.			
19	20	21	1	2	3	1	2	3	4	1	2	1	2	3	4	5	6	1	2	3	4
Rheumatism.	Fever.	Scarlet Fever.	Syphilis.	Stricture of Urethra.	Hydrophobia.	Privation.	Purpura and Scurvy.	Delirium Tremens.	Intemperance.	Thrush.	Worms.	Dropsy and Anæmia.	Cancer.	Noma (Cankers).	Abscess.	Mortification.	Hemorrhage.	Scrofula.	Tabes Mesenterica.	Phthisis, Consumption of the Lungs.	Hydrocephalus.
1	1	....	....	....	....	....	....	....	1	....	1	2	....	....	3	....	....	....	....	17	3
1	1	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	1	....	....	19	1
2	2	.....	....	....	....	....	....	....	1	....	2	3	....	....	3	....	1	.....	....	36	4
2	8	.....	....	....	....	....	....	....	....	....	....	....	3	....	....	....	....	....	....	17	1
....	9	....	....	....	....	....	....	....	....	....	....	1	5	....	....	....	....	....	....	16	1
2	17	....	....	....	....	....	....	....	....	....	....	1	8	....	.....	....	....	....	....	33	2
2	4	7	....	....	....	....	....	....	1	....	....	2	2	....	....	....	1	....	....	12	3
1	2	8	....	....	....	....	....	....	....	....	1	8	3	....	....	....	1	.....	....	19	1
3	6	15	....	....	....	....	....	....	1	....	1	10	5	....	....	....	2	....	....	31	4
....	2	14	....	....	....	....	....	....	....	....	....	7	....	....	1	....	....	....	....	10	.....
....	2	25	.....	....	.....	....	....	....	....	....	1	8	1	....	....	....	....	.....	....	8	2
....	4	39	....	....	....	....	....	....	....	....	1	15	1	....	1	....	.....	....	....	18	2
1	2	21	.....	....	....	....	....	2	....	....	3	3	4	....	4	.....	....	....	....	36	2
2	5	27	....	....	....	....	....	....	....	....	1	4	2	1	1	....	4	....	....	46	4
3	7	48	....	....	....	.....	.....	2	.....	....	4	7	6	1	5	....	4	.....	....	82	6
3	1	2	....	....	....	....	....	....	....	....	....	4	6	....	1	....	1	....	....	31	1
3	5	....	....	....	....	....	....	....	....	....	....	9	12	2	1	....	3	....	....	62	2
6	6	2	.....	....	....	....	.....	.....	....	....	.....	13	18	2	2	....	4	.....	....	93	3
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....
1	....	....	....	....	....	.....	....	....	....	....	....	....	....	....	.....	....	....	....	....	1	.....
1	1	1	....	....	....	....	....	.....	....	....	....	3	1	....	2	....	1	....	....	16	1
3	....	....	....	....	....	....	....	.....	....	....	....	1	....	....	.....	....	1	.....	.....	16	1
4	1	1	....	....	....	....	....	....	....	....	.....	4	1	....	2	....	2	....	....	32	2
1	2	....	....	....	....	....	.....	1	1	.....	.....	7	5	....	....	....	1	1	1	22	4
....	3	.....	....	....	....	....	....	.....	....	.....	....	6	3	....	....	....	1	1	....	33	1
1	5	....	....	....	....	.....	.....	1	1	.....	....	13	8	....	....	....	2	2	1	55	5

TABLE J.—CAUSES

COUNTIES.	Sex.	I.- 1. Miasmatic.																
		1 Small Pox.	2 Measles.	3 Scarlatina.	4 Diphtheria.	5 Quinsy.	6 Croup.	7 Whooping Cough.	8 Infantile Fever.	9 Erysipelas.	10 Metria (Puerperal Fever).	11 Influenza.	12 Dysentery.	13 Diarrhœa.	14 Cholera Infantum.	15 Cholera.	16 Ague.	17 Remittent Fever.	18 Typhoid Fever.
Welland	M	1	....	3	4	....	7	2	...	3	..	2	3	4	7	..	..	...	3
	F	2	1	3	9	....	11	1	..	3	1	2	1	5	4	..	..	..	
	Total	3	1	6	13	....	18	3	..	6	1	4	4	9	11	..	..	..	11
Wellington	M	....	....	....	23	....	15	12	..	3	..	..	4	6	8	..	..	..	10
	F	....	....	....	29	....	12	17	..	1	3	..	2	15	2	1	..	3	12
	Total	....	....	....	52	....	27	29	..	4	3	..	6	21	10	1	..	3	22
Wentworth	M	3	....	2	36	.....	10	21	..	7	..	1	1	36	8	..	1	2	6
	F	1	....	....	41	....	7	25	..	2	2	1	1	27	18	..	..	3	8
	Total	4	....	2	77	....	17	46	..	9	2	2	2	63	26	.	1	5	14
York	M	....	4	11	21	....	17	26	..	5	...	3	13	52	43	5	..	3	37
	F	....	2	13	27	1	13	34	..	11	14	2	8	45	20	7	..	5	29
	Total	....	6	24	48	1	30	60	.	16	14	5	21	97	63	12	..	8	66
Total Males		....	16	12	45	408	5	235	168	2	67	..	21	79	280	211	30	3	29	237
Total Females		....	15	19	48	456	8	197	199	5	69	67	13	72	259	150	22	1	33	199
Grand Total		....	31	31	93	864	13	432	367	7	136	67	34	151	539	361	52	4	62	436

OF DEATH.—*Continued.*

			I.—2. Enthetic.			I.—3. Dietic.				I.—4. Parasitic.		II.—1. Diathetic.						II.—2. Tubercular.			
19	20	21	1	2	3	1	2	3	4	1	2	1	2	3	4	5	6	1	2	3	4
Rheumatism.	Fever.	Scarlet Fever.	Syphilis.	Stricture of Urethra.	Hydrophobia.	Privation.	Purpura and Scurvy.	Delirium Tremens.	Intemperance.	Thrush.	Worms.	Dropsy and Anæmia.	Cancer.	Noma (Cankers).	Abscess.	Mortification.	Hemorrhage.	Scrofula.	Tabes Mesenterica.	Phthisis, Consumption of the Lungs.	Hydrocephalus.
1	....	9	....	....	....	....	....	....	....	....	....	3	2	....	....	....	1	1	....	19	....
....	2	9	....	.....	.....	....	.....	....	.....	....	....	3	4	.....	1	.....	....	1	1	25	1
1	2	18	.....	....	....	....	....	....	....	....	....	6	6	....	1	....	1	2	1	44	1
2	1	3	....	.....	....	....	....	....	....	.....	....	3	4	....	1	....	5	.....	.....	23	3
2	5	7	....	....	....	....	....	....	.....	.....	....	7	6	.....	....	....	3	....	.....	31	2
4	6	10	.....	....	....	.....	....	....	....	....	....	10	10	....	1	....	8	....	....	54	5
2	1	5	....	....	....	....	....	....	1	.....	.....	3	3	....	8	1	1	....	3	50	8
3	2	2	.....	....	....	....	....	....	1	....	....	10	13	.....	2	2	1	1	2	68	7
5	3	7	....	....	....	....	....	....	2	....	....	13	16	.....	10	3	2	1	5	118	15
6	1	35	6	....	1	1	....	2	4	6	1	18	14	....	5	1	3	2	5	127	14
5	4	37	....	....	1	1	....	....	3	5	1	19	25	....	13	1	9	5	2	127	15
11	5	72	6	....	2	2	....	2	7	11	2	37	39	....	18	2	12	7	7	254	29
64	69	164	7	1	1	2	2	14	21	10	16	173	123	9	61	8	33	21	14	1017	107
68	83	176	1	....	2	1	1	1	5	11	16	208	202	7	35	7	59	14	7	1242	95
132	152	340	8	1	3	3	3	15	26	21	32	381	325	16	96	15	92	35	21	2259	202

TABLE J.—CAUSES

COUNTIES.	Sex.	III.—1. Nervous System.														III.—2. Organs of Circulation.		
		1 Cephalitis.	2 Cerebro-spinal Meningitis.	3 Apoplexy.	4 Paralysis.	5 Insanity.	6 Chorea.	7 Epilepsy.	8 Tetanus.	9 Convulsions.	10 Brain Disease.	11 Spinal Disease.	12 Meningitis.	13 Congestion of Brain.	14 Inflammation of Brain.	1 Pericarditis.	2 Aneurism.	3 Heart Disease.
Algoma	M									1								
	F									3								
	Total									4								
Brant	M		1		2	1	1			3	4	1	1	3				6
	F		1	1	6					1	2			1				6
	Total		2	7	8	1	1			4	6	1	1	4				12
Bruce	M	1	3	1	1			2		10	3	2		2				7
	F		2	1	4	1		2		3				1				4
	Total	1	5	2	5	1		4		13	3	2		3				11
Carleton	M			3	10	2				2	2	4	2	1				11
	F			2	4					4	2	1	2	1				4
	Total			5	14	2				6	4	5	4	2				15
Elgin	M		1	7	3					2	3	1	1	1				8
	F		1	2	2	1				4		1		1				8
	Total		2	9	5	1				6	3	2	1	2				16
Essex	M			3	5					7	3	1		1				4
					3	1				2		1		2				7
	Total			3	8	1				9	3	2		3				11
Frontenac	M			6	4			1	1	5	6	1	2	2				16
	F			3	4	1				5	6	1	3	2				7
	Total			9	8	1		1	1	10	12	2	5	4				23
Grey	M			3	2					4	4	3		2				4
	F			1	5	1		1		12	2		2	1				6
	Total			4	7	1		1		16	6	3	2	3				10
Haldimand	M			2	4					3	5			2				6
	F			2	4					3	1		1	1				3
	Total			4	8					6	6		1	3				9

OF DEATH.—*Continued.*

III.—3. Respiratory Organs.						III.—4. Digestive Organs.														
1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Laryngitis.	Bronchitis.	Pleurisy.	Pneumonia.	Asthma.	Lung Disease.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.	Stricture of Intestines.	Fistula.	Stomach Disease.	Hepatitis.	Jaundice.	Liver Disease.	Spleen Disease.	Exhaustion.
....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	2	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
..	1	....	10	....	7	2	8	1	....	...	...	....	....	....	....	1	....	1	1	....	....
....	2	....	5	....	6	....	5	2	....	....	1	....	....	....	....	1	....	....	....	....	3
....	3	....	15	....	13	2	13	3	.....	....	1	....	....	....	....	2	....	1	1	....	3
....	5	....	7	1	11	2	6	1	....	....	3	....	....	....	....	6	1	2	5	1	....
....	3	....	10	1	8	1	1	2	....	1	1	....	....	....	....	....	....	1	3	....	2
....	8	....	17	2	19	3	7	3	....	1	4	....	....	....	....	6	1	3	8	1	
....	3	....	4	1	11	....	5	1	....	....	2	....	....	....	....	2	....	....	3		1
....	4	1	4	1	15	....	6	1	....	....	2	....	....	....	....	....	....	1	3	....	....
....	7	1	8	2	26	....	11	2	....	....	4	....	....	....	....	2	....	1	6	1	1
....	....	....	4	....	10	....	5	....	....	....	1	....	1	....	....	3	....	....	3	....	....
....	1	....	1	....	3	....	9	2	....	....	....	....	....	....	....	....	....	1	....	....	....
....	1	....	5	....	13	....	14	2	....	....	1	....	1	....	....	3	....	1	3	.....	
....	5	1	5	....	13	....	2	1	.....	....	.....	....	....	....	....	....	....	....	4	....	2
....	3	1	4	....	14	....	6	1	....	....	....	....	....	....	....	2	....	1	1	....	1
....	8	2	9	....	27	....	8	2	....	....	....	....	....	....	....	2	....	1	5	....	3
1	10	2	23	1	1	....	5	....	....	2	....	....	....	....	....	....	1	1	3	....	1
....	6	2	15	2	1	2	2	1	....	2	....	....	....	....	....	....	....	....	2	....	1
1	16	4	38	3	2	2	7	1	....	4	....	....	....	....	....	....	1	1	5	....	2
....	3	2	1	1	28	1	13	....	....	....	....	....	....	....	....	....	....	....	10	....	....
....	2	....	5	....	20	....	3	4	....	....	1	....	....	....	....	1	....	....	1	....	....
....	5	2	6	1	48	1	16	4	....	....	1	.....	....	....	....	1	....	....	11	..	....
....	2	....	1	2	9	....	2	2	....	....	....	....	....	....	....	....	....	....	....	....	....
....	2	....	1	1	5	....	3	2	....	....	....	....	....	....	....	1	....	1	1	....	
....	4	....	2	3	14	....	5	4	....	....	....	....	....	....	....	1	....	1	1	....	....

TABLE J.—CAUSES

COUNTIES.	Sex.	III.—1. Nervous System.														III.—2. Organs of Circulation.		
		1 Cephalitis.	2 Cerebro-Spinal Meningitis.	3 Apoplexy.	4 Paralysis.	5 Insanity.	6 Chorea.	7 Epilepsy.	8 Tetanus.	9 Convulsions.	10 Brain Disease.	11 Spinal Disease.	12 Meningitis.	13 Congestion of Brain.	14 Inflammation of Brain.	1 Pericarditis.	2 Aneurism.	3 Heart Disease.
Halton	M			3	4					10	2	1						1
	F			1	3					4	2			2				4
	Total			5	7					14	4	1		2				5
Hastings	M			4	7					7	8	2	2	2				9
	F			4	9	2				16	8	1	1	1				11
	Total			8	16	2				23	16	3	3	3				20
Huron	M		2	3	6		1	3		8	2	2	1	4				10
	F			2	3			1		9		1	1	3				7
	Total		2	5	9		1	4		17	2	3	2	7				17
Kent	M			1	4					5	3			4				11
	F			3	4					5		2	1					7
	Total			4	8					10	3	2	1	4				18
Lambton	M			1	2			1		5	3		1					5
	F			1	2	1			1	2	4		5					4
	Total			2	4	1		1	1	7	7		6					9
Lanark	M				4					2	3	1	1	2				2
	F			1	2			1			4		1	2				4
	Total			1	6			1		2	7	1	2	4				6
Leeds and Grenville	M		1	4	9			1		3		3	2	2	2	1		9
	F	2	1	1	4					3	1	1		1	1		1	9
	Total	2	2	5	13			1		6	1	4	2	3	3	1	1	18
Lennox and Addington	M			1	2	1		1				1						5
	F			4	2					3	1					1		5
	Total			5	4	1		1		3	1	1				1		10
Lincoln	M				7					6	6	1	1	2		1		14
	F				4			1		8	2	2	1	3				9
	Total				11			1		14	8	3	2	5		1		23

OF DEATH.—*Continued.*

III.—3. Respiratory Organs.						III.—4. Digestive Organs.														
1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Laryngitis.	Bronchitis.	Pleurisy.	Pneumonia.	Asthma.	Lung Disease.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.	Stricture of Intestines.	Fistula.	Stomach Disease.	Hepatitis.	Jaundice.	Liver Disease.	Spleen Disease.	Exhaustion.
....	4	....	4	1	6	....	1	1	....	....	....	....	....	....	....	....	.....	....	3	....	....
....	1	....	1	1	9	....	1	....	....	....	1	....	....	....	....	....	....	....	1	....	2
....	5	....	5	2	15	....	2	1	.....	....	1	....	....	....	....	....	....	....	4	....	2
....	6	1	12	1	23	....	6	2	....	....	....	....	.....	....	....	....	....	....	....	....	3
....	....	3	4	2	12	....	7	1	....	....	....	....	....	....	....	....	....	....	5	....	....
....	6	4	16	3	35	....	13	3	....	....	....	....	....	....	....	....	....	....	5	....	3
1	7	1	22	2	1	....	3	3	....	5	....	....	....	....	....	1	1	....	4	....	....
....	5	4	19	1	1	1	6	6	....	....	....	....	....	....	....	....	....	3	2	....	....
1	12	5	41	3	2	1	9	9	....	5	....	....	....	....	....	1	1	3	6	....	.....
1	1	....	1	....	18	....	6	2	....	....	1	....	.....	....	....	....	....	1	2	....	....
....	3	....	3	1	14	....	5	1	....	....	.....	....	....	....	....	....	....	1	2	....	....
1	4	....	4	1	32	....	11	3	....	....	1	....	....	....	....	....	....	2	4	....	....
....	5	....	2	1	10	1	7	2	....	....	....	....	....	.....	....	....	2	1	5	....	4
1	2	....	1	1	4	....	3	3	....	....	....	....	....	....	....	....	....	....	2	....	5
1	7	....	3	2	14	1	10	5	....	....	....	....	....	....	....	....	2	1	7	....	9
....	2	....	4	4	9	1	5	2	....	....	1	....	....	....	....	1	.....	....	1	....	....
.....	2	3	1	....	7	1	7	1	.....	....	....	....	....	....	....	1	....	....	1	....	1
....	4	3	5	4	16	2	12	3	....	....	1	....	....	....	....	2	....	....	2	....	1
....	3	....	24	2	1	1	7	1	....	.....	....	....	....	....	....	....	....	1	6	1	1
....	3	....	16	1	1	....	4	....	....	1	1	....	....	....	....	....	....	....	2	2	....
....	6	....	40	3	2	1	11	1	....	1	1	....	....	....	....	....	....	1	8	3	1
....	....	....	2	....	12	....	3	....	....	....	1	....	....	....	....	....	....	....	2	....	....
....	....	....	2	....	7	....	4	2	....	....	....	....	....	....	....	....	....	1	1	....	....
....	....	....	4	....	19	....	7	2	....	....	1	....	....	....	....	....	....	1	3	....	....
....	6	....	2	....	15	1	4	2	....	....	1	....	....	....	....	....	....	....	2	....	6
....	5	....	4	2	11	....	6	1	....	....	....	....	....	....	....	1	....	1	1	.....	5
....	11	....	6	2	26	1	10	3	....	....	1	....	....	....	....	1	....	1	3	....	11

TABLE J.—CAUSES

COUNTIES.	Sex.	III.—1. Nervous System.														III.—2. Organs of Circulation.		
		1 Cephalitis.	2 Cerebro-Spinal Meningitis.	3 Apoplexy.	4 Paralysis.	5 Insanity.	6 Chorea.	7 Epilepsy.	8 Tetanus.	9 Convulsions.	10 Brain Disease.	11 Spinal Disease.	12 Meningitis.	13 Congestion of Brain.	14 Inflammation of Brain.	1 Pericarditis.	2 Aneurism.	3 Heart Disease.
Middlesex	M	1	3	9	10	5	.....	3	1	15	9	4	2	7	3	....	....	10
	F	1	5	6	7	....	....	1	....	12	7	2	1	8	3	3	1	18
	Total	2	8	15	17	5	....	1	1	37	16	6	3	15	5	3	1	28
Muskoka	M	....	....	.....	....	....	....	.....	..	3	....	....	1	....	....	....	....	....
	F	....	....	....	....	....	....	....	..	5	1	..	.....	....	....	....	....	2
	Total	....	....	.....	....	....	....	....	..	8	1	..	1	....	....	....	....	2
Norfolk	M	....	....	1	7	1	....	1	1	11	3	1	1	2	....	....	1	3
	F	....	....	1	1	....	....	....	..	9	4	..	2	2	....	....	....	2
	Total	....	....	2	8	1	....	1	1	20	7	1	3	4	....	....	1	5
Northumberland and Durham	M	....	1	5	10	2	....	....	..	10	6	1	3	1	....	1	....	9
	F	....	....	5	5	1	....	3	..	6	3	2	3	....	....	....	....	13
	Total	....	1	10	15	3	....	3	..	16	9	3	6	1	....	1	....	22
Ontario	M	....	2	5	3	....	.....	1	..	11	5	4	3	1	2	....	....	6
	F	....	4	5	2	....	....	....	1	7	2	1	1	3	....	....	....	7
	Total	.....	6	10	5	.....	....	1	1	18	7	5	4	4	2	....	....	13
Oxford	M	.....	....	5	5	1	....	....	..	4	1	1	.....	....	3	....	....	9
	F	....	2	3	7	....	.....	....	..	4	3	1	1	2	2	....	....	12
	Total	.....	2	8	12	1	....	....	..	8	4	2	1	2	5	....	....	21
Parry Sound	M	....	....	....	....	....	....	....	..	....	....	....	....	....	....	....	....	....
	F	....	....	1	....	....	....	....	..	1	....	....	....	....	....	....	....	1
	Total	....	....	1	....	....	....	....	..	1	....	....	....	....	....	....	....	1
Peel	M	....	1	3	....	....	....	....	..	1	3	....	.....	1	....	....	....	2
	F	....	1	3	3	....	....	....	..	3	1	....	.....	2	....	....	....	....
	Total	....	2	6	3	....	....	....	..	4	4	....	....	3	....	....	....	2
Perth	M	....	2	3	1	....	....	....	..	4	6	2	1	2	1	1	....	6
	F	....	....	3	2	3	....	....	..	7	5	1	2	3	....	....	....	14
	Total	....	2	6	3	3	....	....	..	11	11	3	3	5	1	1	....	20

OF DEATH.—*Continued.*

III.—3. Respiratory Organs.						III.- 4. Digestive Organs.														
1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Laryngitis.	Bronchitis.	Pleurisy.	Pneumonia.	Asthma.	Lung Disease.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.	Stricture of Intestines.	Fistula	Stomach Disease.	Hepatitis.	Jaundice.	Liver Disease.	Spleen Disease.	Exhaustion.
....	9	2	49	2	1	1	16	2	....	5	2	....	....	....	....	6	2	1	18	....	1
....	7	....	33	2	3	2	11	2	....	3	1	....	....	1	....	4	1	1	6	....	1
....	16	2	82	4	4	3	27	4	....	8	3	....	....	1	....	10	3	2	24	....	2
....	1	....	....	....	8	1	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	1	....	....	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	1	....	1
....	2	....	....	....	9	1	3	....	....	....	....	....	....	....	....	....	....	....	1	....	1
....	1	....	4	....	12	....	10	....	....	....	1	....	....	....	....	4	....	....	3	....	1
....	1	....	....	....	17	....	4	2	....	....	....	....	....	....	....	....	....	....	1	....	1
....	2	....	4	....	29	....	14	2	....	....	1	....	....	....	....	4	....	....	4	....	2
....	5	....	3	....	43	2	10	....	....	....	3	....	....	....	....	2	1	2	3	1	1
....	3	1	6	2	29	1	7	3	....	....	....	....	....	....	....	1	....	2	4	....	....
....	8	1	9	2	72	3	17	3	....	....	3	....	....	....	....	3	1	4	7	1	1
2	12	1	15	2	2	1	6	2	....	1	1	....	....	....	....	1	....	1	6	....	1
....	6	1	21	....	1	1	7	1	....	1	1	....	....	1	....	....	1	2	4	....	2
2	18	2	36	2	3	2	13	3	....	2	2	....	....	1	....	1	1	3	10	....	3
....	6	....	23	....	1	2	6	....	....	2	....	....	....	....	....	....	1	....	2	....	....
....	1	....	16	....	....	1	5	....	....	1	1	....	....	....	....	3	....	....	1	1	1
....	7	....	39	....	1	3	11	....	....	3	1	....	....	....	....	3	1	....	3	1	1
....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	....	....
....	8	1	2	1	6	....	7	2	....	....	....	....	....	....	....	....	1	....	4	....	1
1	3	....	6	....	6	1	....	....	....	....	1	....	....	....	....	....	....	....	1	....	....
1	11	1	8	1	12	1	7	2	....	....	1	....	....	....	....	....	1	....	5	....	1
....	4	1	6	1	18	1	7	4	....	....	....	....	....	....	....	2	....	1	4	....	....
....	5	....	4	....	12	....	4	2	....	....	....	....	....	....	....	1	....	1	3	....	3
....	9	1	10	1	30	1	11	6	....	....	....	....	....	....	....	3	....	2	7	....	3

TABLE J.—CAUSES

COUNTIES.	Sex.	III.—1. Nervous System.														III.—2. Organs of Circulation.		
		1 Cephalitis.	2 Cerebro-Spinal Meningitis.	3 Apoplexy.	4 Paralysis.	5 Insanity.	6 Chorea.	7 Epilepsy.	8 Tetanus.	9 Convulsions.	10 Brain Disease.	11 Spinal Disease.	12 Meningitis.	13 Congestion of Brain.	14 Inflammation of Brain.	1 Pericarditis.	2 Aneurism.	3 Heart Disease.
Peterborough	M	....	1	1	1	....	....	....	..	2	..	3	1	1	....	....	....	2
	F	....	1	1	....	....	....	....	..	1	2	..	....	2	....	....	....	3
	Total	....	2	2	1	....	....	....	..	3	2	3	1	3	....	....	....	5
Prescott and Russell	M	....	1	....	1	....	....	2	..	8	1	..	....	....	1	....	....	4
	F	....	....	....	1	....	....	....	1	4	..	..	....	....	....	....	....	1
	Total	....	1	....	2	....	....	2	1	12	1	..	....	....	1	....	....	5
Prince Edward	M	1	....	5	5	....	....	....	..	3	4	..	....	1	....	....	....	2
	F	....	....	....	6	1	....	1	..	2	1	..	1	....	....	1	....	4
	Total	1	....	5	11	1	....	1	..	5	5	..	1	1	....	1	....	6
Renfrew	M	....	....	....	1	....	....	....	1	6	4	1	....	1	....	....	....	2
	F	....	....	....	2	....	....	....	..	7	2	..	....	....	....	1	....	2
	Total	....	....	....	3	....	....	....	1	13	6	1	....	1	....	1	....	4
Simcoe	M	....	2	3	2	1	....	....	1	9	2	1	....	4	5	1	....	8
	F	....	....	4	4	1	....	....	..	12	3	1	....	3	1	1	....	14
	Total	....	2	7	6	2	....	....	1	21	5	2	....	7	6	2	....	22
Stormont, Dundas and Glengarry	M	....	4	3	5	1	....	....	..	3	5	..	6	1	1	....	....	12
	F	....	1	....	4	1	....	....	..	5	3	..	....	3	....	....	....	8
	Total	....	5	3	9	2	....	....	..	8	8	..	6	4	1	....	....	20
Thunder Bay	M	....	....	....	....	....	....	....	..	....	..	..	....	....	....	....	....	1
	F	....	....	....	....	....	....	....	..	....	..	..	....	....	....	....	....	1
	Total	....	....	....	....	....	....	....	..	....	..	..	....	....	....	....	....	2
Victoria	M	....	1	1	1	....	....	2	..	4	3	1	1	1	....	2	....	6
	F	....	1	....	2	....	....	....	..	6	2	..	2	....	....	....	....	3
	Total	....	2	1	3	....	....	2	..	10	5	1	3	1	....	2	....	9
Waterloo	M	1	2	6	2	....	....	....	..	21	5	2	....	2	....	....	....	8
	F	....	2	3	3	....	....	1	..	18	1	..	....	1	....	....	....	4
	Total	1	4	9	5	....	....	1	..	39	6	2	....	3	....	....	....	12

OF DEATH.—*Continued.*

III.—3. Respiratory Organs.						III.—4. Digestive Organs.														
1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Laryngitis.	Bronchitis.	Pleurisy.	Pneumonia.	Asthma.	Lung Disease.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.	Stricture of Intestines.	Fistula.	Stomach Disease.	Hepatitis	Jaundice.	Liver Disease.	Spleen Disease.	Exhaustion.
2	....	1	13	4	....	1	5	....	....	....	....	....	....	2	....	1	....	1	2	1	....
1	1	....	5	....	....	....	3	1	....	....	....	....	....	....	....	1	....	....	1	....	....
3	1	1	18	4	....	1	8	1	....	....	....	....	....	2	....	2	..	1	3	1	....
....	....	....	7	1	....	....	2	....	....	....	....	....	....	....	....	....	....	1	.....	....	....
....	....	1	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	1	12	1	....	....	2	....	....	....	....	....	....	....	....	....	....	1	....	....	....
....	1	....	5	....	8	....	5	....	....	....	....	....	....	....	....	2	....	2	1	....	....
....	2	....	2	....	2	3	1	1	....	....	....	....	....	....	....	2	....	....	1	....	....
....	3	....	7	....	10	3	6	1	....	....	....	....	....	....	....	4	....	2	2	....	....
....	4	....	3	....	9	....	7	1	....	....	1	....	....	....	....	1	....	....	2	....	2
1	6	1	....	1	8	....	9	....	....	....	....	....	....	....	....	...	....	1	....	....	1
1	10	1	3	1	17	....	16	1	....	....	1	....	....	....	....	1	....	1	2	....	3
2	4	1	22	3	5	1	9	2	....	....	....	....	....	1	....	1	1	....	2	....	....
2	8	....	12	3	3	1	2	1	....	1	2	....	....	....	....	....	....	2	3	....	....
4	12	1	34	6	8	2	11	3	....	1	2	....	....	1	....	1	1	2	5	....	....
2	3	1	19	1	....	1	16	1	....	....	....	....	....	....	....	....	....	1	6	....	....
....	6	....	13	....	2	....	4	2	2	1	....	....	....	2	....	1	2	....	3	....	....
2	9	1	32	1	2	1	20	3	2	1	....	....	.....	2	....	1	2	1	9	....	....
....	....	....	....	....	2	....	.....	....	....	....	....	....	....	....	....	....	.....	.....	....	....	2
....	.....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	3	....	....	....	....	....	..	....	....	....	....	....	.....	.....	....	....	2
2	2	....	1	....	11	....	3	....	....	....	1	....	....	....	....	1	2	....	1	....	1
....	1	....	2	....	8	1	3	2	....	....	....	....	....	....	....	....	....	1	1	....	2
2	3	....	3	....	19	1	6	2	....	....	1	....	....	....	....	1	2	1	2	...	3
....	2	....	5	5	18	....	9	....	....	....	....	....	....	....	....	1	1	1	1	....	....
....	4	....	4	....	16	1	8	2	....	....	....	....	....	2	....	....	....	....	....	....	....
....	6	....	9	5	34	1	17	2	....	....	....	....	....	2	....	1	1	1	1	....	....

TABLE J.—CAUSES

COUNTIES.	Sex.	III.—1. Nervous System.														III.—2. Organs of Circulation.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	1	2	3
		Cephalitis.	Cerebro-Spinal Meningitis.	Apoplexy.	Paralysis.	Insanity.	Chorea.	Epilepsy.	Tetanus.	Convulsions.	Brain Disease.	Spinal Disease.	Meningitis.	Congestion of Brain.	Inflammation of Brain.	Pericarditis.	Aneurism.	Heart Disease.
Welland	M	....	....	2	2	....	..	....	..	3	1	2	1	1	1	1	.....	5
	F	....	1	1	3	....	..	1	...	5	1	1	.....	2	....	....	....	9
	Total	....	1	3	5	....	...	1	..	8	2	3	1	3	1	1	....	14
Wellington	M	....	3	6	7	....	..	1	7	3		2	1	4	....	....	.....	9
	F	....	2		2	....	..	1	12	6		3	2	5	....	....	....	15
	Total	....	5	11	9	.....	..	2	19	9		5	3	9	....	....	....	24
Wentworth	M	....	2	11	8	1	..	1	2	18	3	..	4	4	2	1	1	18
	F	3	1	5	3	....	..	1	..	22	2	..	5	3	3	1	2	16
	Total	3	3	16	11	1	..	2	2	40	5	..	9	7	5	2	3	34
York	M	2	6	23	21	8	1	8	2	36	12	1	14	25	2	....	2	35
	F	1	1	16	13	4	1	5	..	37			18	19	2	1	....	30
	Total	3	7	39	34	12	2	13	2	73	2.	2	32	44	4	1	2	65
Total Males	....	6	39	140	168	24	3	28	9	262	133	50	53	89	22	9	4	285
Total Females	....	7	27	92	135	19	1	20	3	282	93	24	56	80	12	9	4	284
Grand Total	....	13	66	232	303	43	4	48	12	544	226	74	109	169	34	18	8	569

OF DEATHS.—*Continued.*

III.—3. Respiratory Organs.						III.—4. Digestive Organs.															
1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Laryngitis.	Bronchitis.	Pleurisy.	Pneumonia.	Asthma.	Lung Disease.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.	Stricture of Intestines.	Fistula.	Stomach Disease.	Hepatitis.	Jaundice.	Liver Disease.	Spleen Disease.	Exhaustion.
....	2	1	5	1	....	2	4	.....	....	.....	1	....	....	1	.....	1	....	....	3	....	1
1	3	....	8	1	....	2	5	1	....	....	....	....	....	1	.....	....	....	1	1	....	1
1	5	1	13	2	....	4	9	1	....	....	1	....	....	2	....	.....	....	1	1	....	2
....	8	1	3	1	21	1	10	2	.....	....	3	....	....	....	....	2	....	....	2	....	1
....	10	1	3	....	30	2	10	....	....	....	1	....	....	....	....	1	....	....	5	....	2
....	18	2	6	1	51	3	20	2	.....	....	4	....	....	....	....	3	.....	....	7	.....	3
1	16	....	37	2	6	1	15	5	1	....	1	1	.....	2	.....	3	....	3	8	....	4
....	14	....	23	1	2	1	11	5	1	2	2	....	.. ..	2	....	.....	.....	.....	7	....	2
1	30	....	60	3	8	2	26	10	2	2	3	1	....	4	....	3	....	3	15	....	6
3	39	1	94	6	14	1	28	7	....	3	4	....	1	.....	.....	2	2	2	11	....	14
3	28	2	81	11	13	3	15	7	1	2	3	....	1	....	.....	3	2	4	7	.....	1
6	67	3	175	17	27	4	43	14	1	5	7	..	2	....	....	5	4	6	18	....	15
17	192	18	44	47	370	25	265	39	1	18	28	1	2	6	.....	45	16	23	134	5	48
10	154	21	340	35	29	25	189	62	4	15	19	....	1	9	....	24	6	26	78	3	38
27	346	39	786	82	662	50	454	111	5	33	47	1	3	15	....	69	22	49	212	8	86

TABLE J.—CAUSES

COUNTIES.	Sex.	III.—5. Urinary Organs.						III.—6. Generative Organs.		III.—7. Organs of Locomotion.		III.—8. Integumentary System.				IV.—1. Developmental Diseases of Children.				
		1 Nephritis.	2 Nephria (Bright's Disease).	3 Diabetes.	4 Calculus (Stone, Gravel, &c.)	5 Cystitis.	6 Kidney Disease.	1 Ovarian Dropsy.	2 Disease of Uterus.	1 Arthritis.	2 Joint Disease.	1 Phlegmon.	2 Ulcer.	3 Skin Disease.	4 Tumour (part not stated).	1 Still Born.	2 Infantile, Premature.	3 Cyanosis.	4 Spina Bifida.	5 Other Malformations.
Algoma	M				1															
	F																			
	Total				1															
Brant	M		1	3	1								1		1		2			
	F		1										1		1		1			
	Total		2	3	1								2		2		3			
Bruce	M		1				1								1	1	1			
	F		1					1									1			
	Total		2				1	1							1	1	2			
Carleton	M				4												2			
	F		1	1												1	2			
	Total		1	1	4											1	4			
Elgin	M															1	1			
	F														1	2				
	Total														1	3	1			
Essex	M		1		2	2											3			
	F						1								1	1	1			
	Total		1		2	2	1								1	1	4			
Frontenac	M		3	1	1										1					11
	F												1		5		1	1		5
	Total		3	1	1								1		6		1	1		16
Grey	M		1	1	2										1	1				
	F						1								1	1				
	Total		1	1	2		1								2	2				
Haldimand	M		1				2													
	F																1			
	Total		1				2										1			

OF DEATH.—*Continued.*

6	7	IV.—2.		IV.—3	IV.—4	V.—1. Accident or Negligence.								V.—2.	V.—3.	V.—4.	V.—5.				
Teething.	Infantile Debility.	Developmental Diseases of Women. 1 Parametria.	2 Childbirth.	Developmental Diseases of Old People. 1 Old Age.	Diseases of Nutrition. Atrophy and Debility.	1 Fracture or Contusion.	2 Wounds.	3 Burns and Scalds.	4 Poison.	5 Drowning.	6 Suffocation.	7 Otherwise.	8 Killed by Cars.	Homicide (Murder).	Suicide.	Execution.	Violent Deaths (not classed).	Sudden (cause not known).	Cause not specified.	Erroneously specified.	Sunstroke.
....	....	....	....	3	.....	....	....	....	....	....	....	....	....	....	....	....	.....	..	10	3	..
.....	....	....	1	3	.....	....	....	....	....	....	....	....	....	....	....	....	....	..	6	....	..
....	....	....	1	6	.....	....	....	....	....	....	....	....	....	....	....	....	....	..	16	3	..
1	2	....	....	17	.....	2	....	....	....	4	....	....	2	....	2	....	2	..	8	6	..
1	....	....	2	25	.....	....	....	1	....	1	....	....	....	....	....	....	1	..	12	2	..
2	2	....	2	42	.....	2	....	1	..	5	....	....	2	....	2	....	3	..	20	8	..
1	9	....	....	11	4	....	1	....	4	3	....	8	....	....	....	....	....	..	15	12	..
2	5	....	4	16	9	....	1	....	....	4	....	....	....	....	....	....	....	..	16	12	..
3	14	....	4	27	13	....	2	....	4	7	....	8	....	....	....	....	....	..	31	24	..
3	14	....	....	27	4	....	2	....	....	6	....	....	....	....	....	.....	2	1	11	11	..
1	12	.....	6	17	4	....	.....	2	1	....	.....	....	....	....	....	....	....	..	15	7	..
4	26	....	6	44	8	....	2	2	1	6	....	....	....	....	....	....	2	1	26	18	..
....	2	....	....	14	.....	....	1	....	....	....	....	....	1	....	....	....	1	1	20	3	..
....	....	....	5	10	1	....	....	1	....	....	....	.....	....	....	.....	....	2	..	23	4	..
....	2	....	5	24	1	....	1	1	....	....	....	....	1	....	....	....	3	1	43	7	..
1	7	....	....	24	1	1	2	4	1	3	1	....	1	1	....	....	3	3	16	5	..
....	12	....	4	11	.....	....	....	4	....	1	....	.....	....	....	....	....	....	..	14	3	..
1	19	....	4	35	1	1	2	8	1	4	1	....	1	1	....	....	3	3	30	8	..
3	5	....	....	25	9	....	....	1	....	3	1	7	1	....	....	....	....	..	23	2	..
....	4	....	9	21	4	....	....	4	....	....	....	3	....	....	....	....	....	..	24	4	..
3	9	....	9	46	13	....	....	5	....	3	1	10	1	....	....	.....	....	..	47	6	..
1	4	....	....	21	1	....	2	1	....	3	2	....	....	....	3	....	1	..	13	7	..
....	1	....	2	30	4	....	....	4	....	3	1	....	....	....	....	....	1	2	12	3	....
1	5	....	2	51	5	....	2	5	....	6	3	....	....	....	3	....	2	2	25	10	..
....	1	....	....	8	.....	....	....	....	....	3	....	....	....	....	.....	1	1	2	3	1	1
....	6	1	1	12	1	....	....	1	1	1	1	....	....	....	....	....	....	....	....	1	..
....	7	1	1	20	1	....	....	1	1	4	1	....	....	....	....	1	1	2	3	2	1

TABLE J.—CAUSES

COUNTIES.	Sex.	III.—5 Urinary Organs.						III.—6. Generative Organs.		III.—7. Organs of Locomotion.		III.—8. Integumentary System.				IV.—1. Developmental Diseases of Children.				
		1	2	3	4	5	6	1	2	1	2	1	2	3	4	1	2	3	4	5
		Nephritis.	Nephria (Bright's Disease).	Diabetes.	Calculus (Stone, Gravel, &c.)	Cystitis.	Kidney Disease.	Ovarian Dropsy.	Disease of Uterus.	Arthritis.	Joint Disease.	Phlegmon.	Ulcer.	Skin Disease.	Tumour (part not stated).	Still Born.	Infantile, Premature.	Cyanosis.	Spina Bifida.	Other Malformations.
Halton	M			1			1										1			
	F						1									1	2			
	Total			1			2									1	3			
Hastings	M				2											4	1			
	F						1						1		1	1	3			
	Total				2		1						1		1	5	4			
Huron	M		1	3	2		2								1		3	1		
	F			1					2						2					1
	Total		1	4	2		2		2						3		3	1		1
Kent	M				2												3			
	F												1		2					
	Total				2								1		2		3			
Lambton	M			1	2												1			
	F		1		1											1				
	Total		1	1	3											1	1			
Lanark	M			3	4		3													
	F		3				1								1	1				
	Total		3	3	4		4								1	1				
Leeds and Grenville	M			2	2		6								1		1			
	F						1								1		1			
	Total			2	2		7								2		2			
Lennox and Addington	M				1												1			
	F																			
	Total				1												1			
Lincoln	M		2	2			2								1	3	2			
	F						2								1	2	1			
	Total		2	2			4								2	5	3			

OF DEATH.—*Continued.*

6	7	IV.—2.		IV.—3	IV.—4	V.—1. Accident or Negligence.								V.—2.	V.—3.	V.—4.	V.—5.				
Teething.	Infantile Debility.	Developmental Diseases of Women. 1 Parmenia.	2 Childbirth.	Developmental Diseases of Old People. 1 Old Age.	Diseases of Nutrition. 1 Atrophy and Debility.	1 Fracture or Contusion.	2 Wounds.	3 Burns and Scalds.	4 Poison.	5 Drowning.	6 Suffocation.	7 Otherwise.	8 Killed by Cars.	Homicide (Murder).	Suicide.	Execution.	Violent Deaths (not classed).	Sudden (cause not known).	Cause not specified.	Erroneously specified.	Sunstroke.
....	3	....	....	11	1	.....	1	....	.....	1	....	....	3	1	1	....	....	....	6	3	..
....	1	.....	1	8	.....	....	....	....	....	.....	....	....	....	....	....	....	....	....	3	..	..
....	4	....	1	19	1	.....	1	....	....	1	....	....	3	1	1	....	....	.....	9	3	..
4	7	....	....	23	2	....	.....	3	....	9	....	....	....	.....	1	....	1	6	22	9	..
5	11	....	4	24	.....	1	.....	.....	....	2	....	....	....	....	.....	....	....	....	21	3	..
9	18	.....	4	47	2	1	....	3	.....	11	....	....	....	.....	1	....	1	6	43	12	..
2	7	....	....	18	4	....	1	....	.....	7	.....	15	....	....	2	....	....	2	24	21	2
1	8	.....	7	15	5	....	....	1	....	1	....	2	....	.....	....	....	....	1	26	11	2
3	15	....	7	33	9	.....	1	1	....	8	.....	17	....	....	2	.....	....	3	50	32	4
....	9	....	....	14	1	....	2	....	1	6	2	....	1	....	1	.....	2	2	21	..	1
2	5	....	6	16	.....	....	....	1	....	3	1	....	....	....	....	....	..	....	16	2	..
2	14	....	6	30	1	....	2	1	1	9	3	....	1	....	1	....	2	2	37	2	1
....	1	....	....	12	.....	....	1	1	....	2	2	....	1	....	1	....	..	2	10	1	1
....	5	.....	7	10	.....	....	.....	....	....	1	....	....	....	....	....	....	....	....	14	4	..
....	6	.....	7	22	.....	....	1	1	.....	3	2	....	1	....	1	....	....	2	24	5	1
2	3	....	....	10	1	.....	1	.....	....	....	....	..	....	....	....	....	....	2	8	..	1
....	2	.....	3	14	.....	1	1	....	....	1	....	....	....	.....	....	....	....	2	8	2	..
2	5	....	3	24	1	1	2	....	....	1	.....	....	....	....	....	....	.....	4	16	2	1
2	9	....	....	24	4	3	2	1	....	4	1	3	2	.....	1	....	2	2	16	10	..
1	2	....	7	21	4	....	....	1	.....	....	....	.....	....	....	....	..	2	1	13	10	1
3	11	....	7	45	8	3	2	2	.....	4	1	3	2	....	1	....	4	3	29	..	1
1	4	....	....	17	.....	1	....	....	....	4	....	....	....	....	1	....	....	2	12	1	..
1	1	.....	3	17	.....	....	....	1	....	....	....	....	....	....	1	....	.....	1	17	2	..
2	5	.....	3	34	.....	1	.....	1	....	4	....	....	.....	..	2	....	....	3	29	3	..
....	10	....	....	14	.....	1	.....	....	1	6	....	1	1	.....	....	....	.....	1	3	3	1
3	6	....	3	20	1	1	....	1	.....	.....	2	....	.....	....	....	....	....	....	8	1	1
3	16	....	3	34	1	2	.....	1	1	6	2	1	1	....	....	....	.....	1	11	4	2

TABLE J.—CAUSES

COUNTIES.	Sex.	III.—5. Urinary Organs.						III.—6. Generative Organs.		III.—7. Organs of Locomotion.		III.—8. Integumentary System.				IV.—1. Developmental Diseases of Children.				
		1 Nephritis.	2 Nephria (Bright's Disease).	3 Diabetes.	4 Calculus (Stone, Gravel, &c.)	5 Cystitis.	6 Kidney Disease.	1 Ovarian Dropsy.	2 Disease of Uterus.	1 Arthritis.	2 Joint Disease.	1 Phlegmon.	2 Ulcer.	3 Skin Disease.	4 Tumour (part not stated).	1 Still Born.	2 Infantile, Premature.	3 Cyanosis.	4 Spina Bifida.	5 Other Malformations.
Middlesex	M	....	1	1	8	..	2	....	....	....	1	1	..	.....	2	5	3	..	..	....
	F	....	....	..	....	..	1	....	1	....	....	..	..	.....	....	3	3	..	..	....
	Total	....	1	1	8	..	3	.. ..	1	....	1	1	..	.....	2	8	6	..	..	....
Muskoka	M	....	....	1	1	..	..	....	....	....	....	..	..	....	....	1	....	..	..	....
	F	....	.....	..	....	..	1	....	....	....	....	..	..	....	....	....	2	..	..	....
	Total	....	....	1	1	..	1	....	....	....	....	..	..	....	....	1	2	..	..	....
Norfolk	M	....	1	1	....	..	..	....	....	....	....	..	..	....	....	....	....	..	..	....
	F	....	....	..	....	..	..	....	....	....	....	..	1	....	1	....	....	..	..	....
	Total	....	1	1	....	..	..	....	....	....	....	..	1	....	1	....	....	..	..	....
Northumberland and Durham	M	....	2	1	1	..	..	....	....	....	....	..	1	....	1	1	....	..	..	....
	F	....	2	..	2	..	1	....	....	....	....	..	..	.....	6	....	1	..	..	1
	Total	.....	4	1	3	..	1	....	....	....	....	..	1	....	7	1	1	..	..	1
Ontario	M	....	1	1	1	..	..	....	....	....	....	..	..	....	....	1	....	1	..	....
	F	....	1	2	....	..	..	....	2	....	1	..	..	....	....	1	....	1	..	....
	Total	.....	2	3	1	..	..	....	2	.....	1	..	..	....	....	2	....	2	..	....
Oxford	M	....	..	2	..	..	1	....	....	....	....	..	..	....	....	....	1	1	..	....
	F	....	1	1	..	..	..	....	....	....	....	..	..	....	1	1	....	..	..	1
	Total	....	1	3	....	..	1	....	....	....	....	..	..	.....	1	1	1	1	..	1
Parry Sound	M	....	....	..	....	..	..	....	....	....	....	..	..	....	....	....	....	..	..	....
	F	....	..	..	....	..	..	....	....	....	....	..	..	....	....	....	....	..	..	....
	Total	.....	....	..	....	..	..	....	....	....	....	..	..	....	....	....	....	..	..	....
Peel	M	....	....	..	2	..	2	....	....	....	....	..	..	....	.....	1	1	..	1	....
	F	....	1	1	..	..	..	....	....	....	....	..	..	....	....	1	....	..	..	....
	Total	....	1	1	2	..	2	....	....	....	....	..	..	....	....	2	1	..	1	....
Perth	M	....	1	..	....	..	..	....	....	....	....	..	2	....	....	1	....	..	..	....
	F	....	....	1	....	..	1	....	....	....	....	..	..	....	1	2	1	..	..	....
	Total	....	1	1	....	..	1	....	....	....	....	..	2	....	1	3	1	..	..	....

OF DEATH.—*Continued.*

		IV.—2.		IV.-3	IV.-4	V.—1. Accident or Negligence.								V.—2.	V.—3.	V.—4.	V.—5.				
6	7	Developmental Diseases of Women.		Developmental Diseases of Old People.	Diseases of Nutrition.	1	2	3	4	5	6	7	8								
Teething.	Infantile Debility.	1 Paramenia.	2 Childbirth.	1 Old Age.	1 Atrophy and Debility.	Fracture or Contusion.	Wounds.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Otherwise.	Killed by Cars.	Homicide (Murder).	Suicide.	Execution.	Violent Deaths (not classed).	Sudden (cause not known).	Cause not specified.	Erroneously specified.	Sunstroke.
3	19	....	....	41	10	2	2	4	....	4	1	9	12	1	1	.....	....	....	12	29	1
3	8	..	7	28	3	....	.....	2	2	1	....	4	....	....	.....	....	....	....	18	10	..
6	27	....	7	69	13	2	2	6	2	5	1	13	12	1	1	....	....	....	30	39	1
....	1	....	....	4	1	....	1	....	....	3	.....	....	....	....	....	....	1	..	6	4	..
....	....	....	5	2	.....	.....	1	1	....	..	....	....	....	....	....	....	....	....	5	0	..
....	1	....	5	6	1	.....	2	1	....	3	....	....	.....	..	....	....	1	....	11	4	..
1	4	....	.....	8	.....	1	....	....	....	3	....	....	....	....	....	....	....	2	5	..	..
1	1	....	3	3	.....	....	....	2	....	1	1	....	....	1	1	....	....	2	....	3	..
2	5	....	3	11	.....	1	....	2	....	4	1	....	....	1	1	....	....	4	5	3	..
2	2	....	....	50	.....	1	....	1	....	6	2	.....	....	....	3	....	....	5	15	11	..
2	2	....	7	24	1	1	1	1	1	....	1	....	....	....	....	....	....	....	20	6	1
4	4	....	7	74	1	2	1	2	1	6	3	....	....	....	3	....	....	5	35	17	1
....	9	....	..	19	3	1	1	1	....	3	....	8	1	....	2	....	....	....	28	10	..
1	4	....	1	16	3	....	....	1	1	1	....	2	....	....	....	....	....	....	29	6	..
1	13	....	1	35	6	1	1	2	1	4	....	10	1	....	2	....	....	....	48	16	..
....	....	....	....	10	3	1	1	1	....	4	....	2	1	....	2	....	....	....	18	12	..
1	....	....	3	14	1	....	....	1	....	1	....	....	....	....	....	..	....	....	22	9	..
1	....	....	3	24	4	1	1	2	....	5	....	2	1	..	2	....	....	....	40	21	..
....	....	....	....	.....	.....	....	....	....	....	2	....	....	....	....	....	....	....	1	4	..	..
....	....	....	....	1	.....	....	....	....	....	2	....	....	....	....	....	....	....	....	1	..	..
....	....	....	....	1	.....	....	....	....	....	4	....	....	....	....	....	....	....	1	5	..	..
....	2	....	..	21	1	2	1	2	....	1	....	....	3	....	1	....	1	1	12	6	..
....	....	....	3	10	.....	....	....	....	....	1	.....	....	....	....	1	....	....	....	11	1	..
....	2	....	3	31	1	2	1	2	....	2	....	....	3	....	2	....	1	1	23	7	..
1	8	....	....	18	2	....	....	....	....	3	....	....	4	....	2	....	....	4	13	1	..
1	5	....	8	18	.....	....	....	1	....	1	....	....	....	....	....	....	1	....	3	..	..
2	13	.....	8	36	2	....	....	1	....	4	.....	....	4	....	2	....	1	4	16	1	..

TABLE J.—CAUSES

COUNTIES.	Sex.	III.—5. Urinary Organs.						III.—6. Generative Organs.		III.—7. Organs of Locomotion.		III.—8. Integumentary System.				IV.—1. Developmental Diseases of Children.				
		1	2	3	4	5	6	1	2	1	2	1	2	3	4	1	2	3	4	5
		Nephritis.	Nephria (Bright's Disease).	Diabetes.	Calculus (Stone, Gravel, &c.)	Cystitis.	Kidney Disease.	Ovarian Dropsy.	Disease of Uterus.	Arthritis.	Joint Disease.	Phlegmon.	Ulcer.	Skin Disease.	Tumour (part not stated).	Still Born.	Infantile, Premature.	Cyanosis.	Spina Bifida.	Other Malformations.
Peterborough	M		1		1						2					1	1			
	F														2					
	Total		1		1						2				2	1	1			
Prescott and Russell	M																			
	F						1													
	Total						1													
Prince Edward	M															1				
	F						1									2				
	Total						1									3				
Renfrew	M		1		1								1			1	2			
	F																2			
	Total		1		1								1			1	4			
Simcoe	M	2	1		3		1									2	1			
	F	1													1	1	2			1
	Total	3	1		3		1								1	3	3			1
Stormont, Dundas and Glengarry	M		1		1	2	1					1			2		1			
	F						1								2		1			
	Total		1		1	2	2					1			4		2			
Thunder Bay	M															1				
	F																			
	Total															1				
Victoria	M		1	1	2						1				1					
	F		1	2	1								1	1	1	1				
	Total		2	3	3						1		1	1	2	1				
Waterloo	M				1										1	2	1		1	
	F						2		1				1			1	2			
	Total				1		2		1				1		1	3	3		1	

OF DEATH.—*Continued.*

6	7	IV.—2.		IV.-3	IV.-4	V.—1. Accident or Negligence.								V.—2.	V.—3.	V.—4.	V.—5.				
Teething.	Infantile Debility.	Development-al Diseases of Women.		Development-al Diseases of Old People.	Diseases of Nutrition.	1	2	3	4	5	6	7	8								
		1	2	1	1	Fracture or Contusion.	Wounds.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Otherwise.	Killed by Cars.	Homicide (Murder).	Suicide.	Execution.	Violent Deaths (not classed).	Sudden (cause not known).	Cause not specified.	Erroneously specified.	Sunstroke.
		Paramenia.	Childbirth.	Old Age.	Atrophy and Debility.																
.....	3	....	.....	18	1	....	.....	1	....	3	....	5	....	1	....	....	.....	..	14	....	...
1	4	....	3	6	1	1	....	2	....	1	....	....	....	1	..	....	.....	..	8	3	..
1	7	....	3	24	2	1	....	3	.....	4	....	5	....	2	.....	....	.....	..	22	3	...
1	20	....	.....	7	1	....	1	1	.....	2	....	3	....	....	....	....	.....	..	22	2	..
...	10	....	6	17	.....	....	.....	.....	1	.....	....	1	.....	....	.....	....	.....	..	22	2	..
1	30	....	6	24	1	....	1	1	1	2	..	4	....	....	....	....	.....	..	44	4	..
...	....	....	....	15	.....	....	1	....	....	2	....	....	....	....	1	....	1	1	9	.....	.
1	1	....	2	7	1	....	....	....	.....	1	....	....	....	....	....	....	....	2	7	....	..
1	1	....	2	22	1	....	1	....	....	3	....	....	....	....	1	....	1	3	16	....	..
2	8	....	....	5	.....	....	....	.....	....	1	.....	....	....	....	....	.....	2	1	14	4	..
2	5	....	1	10	1	....	.. ..	1	....	2	....	....	....	....	....	.....	.....	..	10	1	3
4	13	.....	1	15	1	....	....	1	....	3	....	.....	.....	....	....	....	2	1	24	5	3
1	11	....	....	24	5	3	....	1	....	5	1	7	2	....	....	....	.....	...	19	16	1
....	12	1	6	23	4	....	....	3	2	....	....	2	....	....	....	....	1	..	22	8	..
1	23	1	6	47	9	3	.....	4	2	5	1	9	2	....	....	....	1	..	41	24	1
....	7	....	....	43	6	2	....	....	....	3	....	11	1	1	....	....	.....	3	46	8	..
1	1	....	7	33	4	....	....	....	....	1	....	1	....	....	....	....	....	1	38	4	..
1	8	....	7	76	10	2	.....	.....	....	4	....	12	1	1	....	....	.....	4	84	12	..
....	1	....	....	.....	.....	....	....	....	....	2	....	....	....	....	....	....	.....	1	....	....	..
....	1	....	....	.....	.....	....	....	....	....	....	....	....	....	....	....	....	.....	..	.....	....	..
....	2	....	....	.....	.....	....	....	....	....	2	.....	....	....	....	....	....	.....	1	....	....	..
1	4	....	.....	12	1	1	....	....	....	3	....	.....	1	....	1	.....	. ..	..	12	2	..
....	8	....	2	14	.....	....	....	1	....	1	....	.....	....	....	1	....	.....	1	15	....	..
1	12	....	2	26	1	1	....	1	....	4	....	.....	1	....	2	....	.....	1	27	2	...
2	12	....	....	27	.....	....	1	....	....	4	1	.....	4	....	....	....	2	4	4	7	..
....	11	....	7	27	.....	....	....	1	....	....	....	....	....	....	....	....	.....	1	10	....	..
2	23	....	7	54	.....	....	1	1	....	4	1	.....	4	....	....	....	2	5	14	7	..

TABLE J.—CAUSES

COUNTIES.	Sex.	III.—5. Urinary Organs.						III. 6. Generative Organs.		III.—7. Organs of Locomotion.		III. 8. Integumentary System.				IV.—1. Developmental Diseases of Children.				
		1	2	3	4	5	6	1	2	1	2	1	2	3	4	1	2	3	4	5
		Nephritis.	Nephria (Bright's Disease).	Diabetes.	Calculus (Stone, Gravel, &c.)	Cystitis.	Kidney Disease.	Ovarian Dropsy.	Disease of Uterus.	Arthritis.	Joint Disease.	Phlegmon.	Ulcer.	Skin Disease.	Tumour (part not stated).	Still Born.	Infantile, Premature.	Cyanosis.	Spina Bifida.	Other Malformations.
Welland	M					1	1								2		1			
	F								2						1			1		
	Total					1	1		2						3		1	1		
Wellington	M			4	1		2						1		1	2			2	
	F		1				1						1		1	1			1	
	Total		1	4	1		3						2		2	3			3	
Wentworth	M		3		1		7						1			7	3		1	
	F		6		1		1		2						4	10	7	1		
	Total		9		2		8		2				1		4	17	10	1	1	
York	M	1	10	2	2		6				1	1	3		4	21	29	1	1	
	F		6	3			3		2		1	2	2		3	17	14	1		1
	Total	1	16	5	2		9		2		2	3	5		4	38	43	2	1	1
Total Males		3	34	31	52	5	40				5	3	10		18	58	66	4	6	11
Total Females		1	26	12	5		22	1	12		2	2	10	1	41	52	49	5	1	10
Grand Total		4	60	43	57	5	62	1	12		7	5	20	1	59	110	115	9	7	21

OF DEATH.—*Concluded.*

		IV.—2.		IV.—3	IV.—4	V.—1. Accident or Negligence.								V.—2.	V.—3.	V.—4.	V.—5.				
6	7	1	2	1	1	1	2	3	4	5	6		8								
Teething.	Infantile Debility.	Parumenia.	Childbirth.	Old Age.	Atrophy and Debility.	Fracture or Contusion.	Wounds.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Otherwise.	Killed by Cars.	Homicide (Murder).	Suicide.	Execution.	Violent Deaths (not classed).	Sudden (cause not known).	Cause not specified.	Erroneously specified.	Sunstroke.
....	5	....	....	20	5	4	1	....	....	7	....	4	3	....	1	....	....	..	11	3	1
....	2	....	5	12	2	....	....	1	....	1	....	....	1	....	....	....	....	4	12	....	..
....	7	....	5	32	7	4	1	1	....	8	....	4	4	....	1	....	....	4	23	3	1
1	12	....	....	20	.....	1	1	....	1	3	1	....	3	....	3	....	3	2	17	2	..
....	15	....	9	24	.....	....	....	1	1	1	1	....	....	....	....	....	....	1	25	11	..
1	27	....	9	44	.....	1	1	1	2	4	2	....	3	....	3	....	3	3	42	13	..
1	12	....	....	20	3	2	2	1	1	3	1	1	3	....	4	1	....	1	11	13	2
....	10	....	2	35	4	1	....	1	....	....	....	1	....	....	....	....	....	..	8	10	..
1	22	....	2	55	7	3	2	2	1	3	1	2	3	....	4	1	....	1	19	23	2
12	49	....	....	49	16	2	1	3	1	23	4	20	4	1	1	....	....	1	24	20	..
4	39	1	12	62	6	....	....	3	3	2	1	3	2	....	1	....	....	..	33	17	1
16	88	1	12	111	22	2	1	6	4	25	5	23	6	1	2	....	....	1	57	37	1
49	286	....	....	724	90	31	30	27	10	154	20	104	55	6	35	2	25	53	557	248	12
35	220	3	174	676	64	6	4	45	13	36	9	19	3	2	5	....	8	19	558	162	9
84	506	3	174	1400	154	37	34	72	23	190	29	123	58	8	40	2	33	72	1115	410	21

CAUSES OF DEATH.

True and natural Euthanasia—'true old age' with easy death, comes to but few. In the struggle for existence, amid the many causes of disease and death by which man is surrounded, some of his own creating, some entirely beyond his control, very few comparatively contrive to struggle through and survive 70 years, and yet much fewer, 80 years. When life is prolonged to 70 years or over, the causes of death are interesting and not unimportant, but when it is extinguished prematurely, in infancy or childhood, or in the prime of manhood, by zymotic, constitutional or local diseases, often from causes of man's own creating—preventable or removable causes, immediate and remote, then these become an interesting and highly important study—a study hardly second in importance to any in the scope of learning.

The causes of death in the returns under consideration are frequently not so satisfactory as they might be. Essential facts in the associated links of the cause are often omitted. Convulsions, debility and hemorrhage are given as causes of death without a word as to what was the immediate cause of the convulsions, debility and hemorrhage, which are in fact but symptoms of disease. Lung disease is a very indefinite cause frequently given. It is very desirable indeed that more thought and care be given to this point, especially by medical men, and that a full and comprehensive cause of death be given when possible. Brief remarks too, as to habits of life, previous history, &c. of deceased, when known would prove valuable additions to statistical records.

In 1,115 of the total 18,623 deaths registersd the cause of death was not given, *i.e.* one death in about every 17 had no cause assigned. In some of these no doubt no medical man had been in attendance; in others the cause was probably unknown; while in some perhaps it was simply an oversight. In some, however, evidently the omission was owing to indifference or neglect on the part of the attending physician. True the disease of which a person dies is not always known, and as Dr. William Farr says, "the medical practitioner has had inadequate means of observation; he may be imperfectly skilled in advanced diagnosis; or the symptoms may be indistinct, complicated, and only explicable by autopsy. In such cases the certified cause is vague; but it does not follow that the whole series of the returns subject to such imperfections is useless. If the attainable though imperfect knowledge of disease suffices for the purposes of medical practice, it cannot be worthless for medical statistics."

The following is a record of the ten highest causes of death :—

	Males.	Females.	Total.	per cent. of the specified causes.
Phthisis	1017	1242	2259	or 12·9
Old Age	724	676	1400	" 8
Diphtheria	408	456	864	" 5
Pneumonia	446	340	786	" 4
Lung Disease	370	292	662	" 3½
Heart Disease	285	284	569	" 3
Convulsions	262	282	544	" 3
Diarrhœa	280	259	539	" 3
Typhoid Fever	237	199	436	" 2½
Dropsy	173	208	381	" 2

Of all the causes of disease affecting the human race phthisis, commonly called consumption, is constantly the most fatal; the mortality by it in Ontario for the year under review was 2,259 or 12·9 per cent. of all the deaths of which the cause was specified.

This rate is slightly higher than that of England, and about the same as that of Scotland. In Rhode Island in 1875 it was about 15 per cent.

The most alarming feature as regards this fearfully prevalent disease is, that it seems to be steadily on the the increase in Ontario. In 1872, 10·9 per cent. of the deaths returned with specified causes were of this disease; in 1873, 11·43 per cent.; in 1874, 11·54 per cent.; and in 1876, 12·9 per cent. of the deaths returned were caused by phthisis. This steady increase for even the five years mentioned is certainly enough to awaken deep interest in, and a desire to investigate its causes.

There were 225 more females than males died of phthisis in Ontario in 1876. Only nine of the counties returned more deaths of males than of females. In the united counties of Leeds and Grenville this disease appears to have been most fatal. Of the total deaths returned (555) 18·7 per cent. (or 104) were caused by it, or at the rate of 1·5 per 1000 living. Lanark seems next in this respect, returning 17·3 per cent. (or 47) of the total returned (271), 1·3 per 1000 living. Haldimand gives 16 per cent. (or 37) of the total (226), 1·3 per 1000. Hastings is fourth in its mortality from this disease, returning 15·9 per cent. (98) of the total deaths (615), 1·78 per 1000. Stormont, Dundas and Glengarry (united) returns 14·7 per cent. of the totals, or 1·4 per 1000. Brant gives 14·5 per cent. of the totals, or 1·5 per 1000. These with Frontenac, Bruce and Elgin return a death rate from consumption *above the average* of the province (12·9 per cent. of totals, or 1·2 per 1000 living). Next in proportion comes Middlesex, Wentworth, Oxford, Huron, Lincoln, Welland and Northumberland and Durham.

York, including Toronto, returns 254 deaths from this disease; 10.9 per cent. of the totals (2,325), or 1·9 per 1000. It will be observed that this death rate per 1000 living in York was a little higher than in other counties, but the returns from York, especially Toronto, were much fuller than those of the other counties. For example, of the above mentioned counties, Oxford returns the lowest death rate from this disease per 1000 living, namely 1·1; but it only returns a total death rate of 10 per 1000, while York returns over 17 per 1000.

Considerably the smallest death rate from this disease was seemingly in Renfrew, which gives only 18 in a total of 310, or 5·8 per cent.; 0·56 per 1000. Parry Sound and Muskoka come next. While the remaining counties do not vary much in the porportion of returns from this cause.

It is very generally acknowledged by the most eminent physicians that one important and prolific cause, and probably the principal cause of this disease, is the breathing of foul air, but especially that rendered foul and poisonous by respiration; and this more especially in connection with sedentary habits. Furthermore, it is found to be most prevalent in localities with wet undrained soil, least so in high, mountainous, well-drained districts. It has been found by the Registrar-General's returns for a period of ten years that in the elevated granite region of Dartmoor in Devonshire, England, the death rate from it was only 0·78 per 1000 living, while in England generally it was 2·47 per 1000.

The fact of the somewhat larger increase in 1876 (which however it must be remembered covers two years) in which there is the largest increase in the returns from cities and towns, where people are less in the open air and more confined in unventilated rooms, and commonly more exposed to foul air, tends to strengthen the belief that a vitiated atmosphere is an important and active factor in the production of this disease.

The second largest number in the returns as to causes of death is that of old age, so registered. When it is observed that 2740 survived 70 years, and 1145 survived 80 years, the number returned (1400) as dying from old age may perhaps be regarded as in the main correct, though it seems but very few waste away and die of natural old age before reaching 80 or 90, and it is probable that many of the deaths ascribed to this cause were immediately preceded by some special or local disease, more or less latent, as pneumonia or disease of the liver or stomach. Old age is an easy and a tempting cause to assign for death when the decedents reach advanced age.

The number of deaths from diphtheria has largely increased. In 1874 the deaths were not sufficiently numerous to be placed on the list of the ten highest causes of death, it now stands the third highest. In 1876, over five per cent. of the deaths, with specified causes, were returned as diphtheria, which in 1874 only 2·1 per cent. of the returns were from this cause. Then as the largest increase in the returns were from the cities and larger towns, and as this is rather a disease of the country than of the city, it may be inferred that the proportional increase is even greater than the returns show.

There are those who maintain that there is no distinction between diphtheria and croup, and certainly there seems to be in many cases a difficulty in defining the limits of each disease. It is therefore probable that some of the deaths returned as diphtheria might have been as correctly returned under the head of croup. But croup also has largely increased. In 1874, 1·45 per cent. of the total returns were under the head of this cause, while in 1876, 2·5 per cent. are under the same.

The returns from nearly all the counties show a much larger number of deaths from diphtheria than from croup; a few show the reverse of this. Oxford returns the largest number from diphtheria and also the largest from the two diseases together, viz.: 96 from diphtheria and 15 from croup, total 111. Wentworth comes next, 77 from diphtheria, 17 from croup, total 94. Wellington third, 52 diphtheria, 27 croup, total 79. Next, York, 48 diphtheria 30 croup, total 78. Hastings, 44 diphtheria, 18 croup. Huron, Norfolk, Northumberland and Durham (united) each return 38 diphtheria and 31, 8.8 respectively from croup. For the most part the counties returning the largest number from diphtheria returned also the largest from croup. Frontenac, however, returns 3 diphtheria and 12 croup, and Prescott and Russell 2 diphtheria and 21 croup. This would seem to show that there may be some difficulty in diagnosing, and that the distinction between the two diseases is not very well marked. Excepting Algoma, Prince Edward returns the least number of the two diseases together, viz.: 2 of each; but Peterborough returns 1 diphtheria and 4 croup, and as its estimated population is about 35,000 and that of Prince Edward 23,000 it shows the lowest mortality from diphtheria and also from the two diseases together, but the returns from Peterborough are not so full proportionately as those from Prince Edward.

Comparing the County of York, including Toronto (the largest city in the Province) with the County of Oxford (in which there are no very large towns) the death rate in the latter from diphtheria and croup was 2 per 1000 living of the estimated population; while in York the rate from the same diseases was only 0·58 per 1000.

The difference becomes very great on comparing the number of deaths from diphtheria and croup with the total number of deaths returned from these two counties, York returns a total of 2326 deaths, 78, or only 3·35 per cent. of which are caused by diphtheria and croup; while Oxford returns a total of 540, 111 or 20·5 per cent. of which are from diphtheria and croup. Peterborough, on the other hand, returns a total of 240 deaths, and only 5 or about 2 per cent. from diphtheria and croup; or only 0·14 per 1000 living. Oxford returns a *total* death-rate of about 10 per 1,000 living; Peterborough, 7 per 1,000 living.

Diphtheria seems to be on the increase in other counties also. The number of deaths from it in New York in 1874 was 1665—514 in excess of that of 1873. In 1874, 1875 and 1876 many parts of Massachusetts suffered greatly from this disease. Reports from 213 cities and towns in that State, in a very large number of which diphtheria prevailed epidemically, show in the main that the cause of this disease is telluric or meteorological, and that it is contagious, and attended with the greatest mortality and severity where generally insanitary conditions, especially soil moisture and filth prevail. In some cities, high localities, with sandy and rocky soil, were remarkably exempt.

In the epidemics of the three years in Massachusetts, the greatest severity and fatality were in the rural districts. Dr. W. Farr shows also from late returns of deaths that of 1,000 children born 4·9 die of diphtheria in the whole of England and Wales; 4·4 in Liverpool, and no less than 10·3 in otherwise healthy rural districts in England and Wales.

We have further evidence of the greater fatality of this disease in rural districts in comparing the death-rate of Oxford with that of York as above.

Diphtheria being more severe and fatal in districts where insanitary conditions prevail, it is commonly classed among the filth diseases. From reports upon a severe epidemic at Milan in 1874, it was concluded that "no curative treatment which could be regarded as at all constant had yet been discovered; and that the measures most to be relied upon were prophylactic, which were to be sought in the careful administration of public hygienic measures." The mortality is usually largest below five years of age, especially from two to five, and decreases with age.

Deaths from Pneumonia have decreased from 1875 to 1876, but Lung Disease has greatly swelled its lists of victims. Lung disease is a most unsatisfactory cause of death to give, and it is to be hoped that medical men will in future endeavour to diagnose the nature of the disease, whether tubercular or otherwise, at least. The difficulty in distinguishing phthisis in its advanced stage is not very great, and it is probable not a very large proportion of these were tubercular, though most likely some, possibly many, were; and it may be inferred that the number of those returned as consumption, and referred to

already, was really somewhat larger than the returns showed. On the other hand, it is possible that some of the deaths returned under the head of consumption may not have been caused by true phthisis.

It must be observed that, while some of the counties showing a high death-rate from consumption show also a high death-rate from lung disease, so recorded, others give a very low return from this last cause. For example, the United Counties of Leeds and Grenville, and of Stormont, Dundas and Glengarry, which return a very high rate from consumption, only return two each from "lung disease," so-called, while Haldimand, Hastings and Lanark much smaller counties, returning also a high rate in consumption, return 14, 35 and 16 respectively from lung disease. Again, Frontenac returns only two from lung disease, and Bruce and Elgin return 19 and 13 respectively. Peterborough, Prescott and Russell and Welland return none from this cause, while Northumberland and Durham (united), Wellington and Grey return respectively 72, 51 and 48 from consumption and lung disease together, these three counties show a very high death-rate, viz., 21·6, 15 and 19 per cent. respectively of the total of deaths returned.

Though a larger number by 18 per cent. of deaths from typhoid fever were returned in 1876, there were a smaller number registered in proportion to the total number of deaths, and it has decreased from the fourth highest cause of death to the ninth. The County of Halton seems to have suffered most from this disease—4½ per cent. of the total number of deaths were caused by it, *i. e.*, one death from typhoid fever in every 20·5 deaths from all causes. Waterloo gives 4 per cent., one in every 23.8 deaths. Elgin, Lincoln and Norfolk give over 3½ per cent.; and Huron, Oxford and Wellington over 3 per cent. Prescott and Russell, on the other hand, return only one case in a total of 269 deaths from all causes. Peterborough only returns one in a total of 240, and Prince Edward two in a total of 233. These are considerably below most of the counties. York, including Toronto, returns less than 3 per cent. of the total, or one in 35 from all causes; Wentworth, with Hamilton, less than 1½ per cent., or one in 71 from all causes.

When we find York and Wentworth, containing the two largest cities in the Province, showing a much smaller mortality from typhoid fever than counties containing no large towns even, one can only look upon it as further evidence that the now generally received opinion among statisticians is correct, that this is, like diphtheria, rather a disease of the country or of scattered communities, than of the city, as has been stated.

A Table in the Sixth Annual Report of the State Board of Health of Massachusetts, shows that during a period of ten years, in 147 cities and towns with more than 2,000 inhabitants each, containing an aggregate population of 1,044,294, the average death-rate from typhoid fever each year per 1,000 persons living, was 0·775; while in 184 towns and villages of less than 2,000 inhabitants each, with a total population of 213,468, the average death-rate from typhoid per 1,000 was 1·189; or more than 50 per cent. greater.

Typhoid fever is universally regarded as one of the filth diseases.

The cities and larger towns have their boards of health to look after sanitary affairs; they usually have a better water supply; they have sewers and water-closets. In villages and among the farming community, there are no boards of health; the wells from which the water supply is obtained, is often near the back-door, where slops are often thrown, or it is in proximity to the privy or barn-yard, and becomes contaminated with organic matter; and dwellings are frequently built on low or undrained foundations, and have dark, damp, unventilated cellars.

Is it surprising that filth diseases should prevail to a greater extent in the latter places than in the former?

TABLE K.—Deaths by Occupations.

COUNTIES.	Agents.		Artists.		Brickmakers.		Blacksmiths.	
	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.
Algoma								
Brant					1	53	2	105
Bruce					1	53		
Carleton	1	104					2	129
Elgin	1	56						
Essex							5	237
Frontenac							1	49
Grey	1	37					2	157
Haldimand	1	32					1	60
Halton	1	29					2	68
Hastings			1	39			2	127
Huron			1	66			4	195
Kent								
Lambton	1	64					1	5
Lanark			1	22			1	45
Leeds and Grenville							7	407
Lennox and Addington							6	377
Lincoln			1	57	1	76		
Middlesex	4	149	1	56			2	106
Muskoka							1	66
Norfolk	1	34						
Northumberland and Durham	1	69					2	106
Ontario			1	45			1	45
Oxford							2	54
Parry Sound								
Peel							1	61
Perth							2	50
Peterborough					1	41		
Prescott and Russell								
Prince Edward	1	54						
Renfrew							1	28
Simcoe							2	116
Stormont, Dundas and Glengarry							4	180
Thunder Bay								
Victoria							2	107
Waterloo	1	54					1	46
Welland							1	39
Wellington								
Wentworth	2	60					2	116
York	2	90					6	361
Total	18	882	6	285	4	223	66	3482

TABLE K.—Deaths by Occupations.—*Continued.*

Boilermakers.		Brewers.		Bricklayers.		Barbers.		Butchers.		Bookkeepers and Clerks.		Bankers.	
No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.
				1	85	1	80			5	135		
										2	71		
						4	92	1	22	1	67	1	34
								1	49	1	29	1	86
		2	116			1	23			1	36	1	42
								1	36	1	28		
										1	43	1	23
										2	56		
				1	36					3	125		
						1	26	1	86	4	114		
								1	34	1	27	1	60
										2	72	1	30
								1	75	7	352		
						1	22	1	39	1	49		
1	44					1	58	6	211	10	409		
										1	43		
								3	170	4	228		
										1	25		
								1	28	1	42		
										1	28		
										1	58		
										1	41		
								1	54	1	29	1	22
				1	81			1	91	1	64		
		2	73			1	45						
								1	38	1	51		
								1	46	2	89		
		1	84					1	40	11	482	1	24
		1	35	5	237	1	26			17	748	2	48
1	44	6	308	8	439	11	372	22	1019	85	3541	10	369

TABLE K.—Deaths by Occupations.—*Continued.*

COUNTIES.	Bakers and Confectioners.		Carpenters.		Cabinetmakers.		Coopers.	
	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.
Algoma								
Brant	1	40						
Bruce			3	99	1	77	1	64
Carleton	2	115	4	246	1	36		
Elgin			2	62	1	24		
Essex	2	92	2	119				
Frontenac			5	206	1	65		
Grey	1	76	5	233				
Haldimand			5	188				
Halton			5	260				
Hastings			7	383	1	31	1	59
Huron	1	20	7	264				
Kent			3	139			1	28
Lambton	1	73	5	257				
Lanark			6	222	1	46		
Leeds and Grenville			10	550	1	77	2	114
Lennox and Addington	2	63	2	116				
Lincoln			5	262	1	62	1	36
Middlesex	2	100	8	347	4	187		
Muskoka			1	43	1	39		
Norfolk			2	140			1	77
Northumberland and Durham			5	216	1	79	2	100
Ontario			5	220			1	53
Oxford			2	110	1	23		
Parry Sound			1	45				
Peel			4	216	1	49		
Perth							1	37
Peterborough			2	94				
Prescott and Russell								
Prince Edward					1	75		
Renfrew			1	60				
Simcoe			7	422				
Stormont, Dundas and Glengarry								
Thunder Bay								
Victoria			3	154				
Waterloo			4	257			2	158
Welland	2	98	4	177				
Wellington			5	232				
Wentworth			6	300	3	115	3	135
York	2	101	12	520	5	231	3	206
Total	16	778	148	7159	25	1216	19	1067

TABLE K.—Deaths by Occupations.—*Continued.*

Cooks.		Chemists and Druggists.		Clergymen.		Contractors.		Carriage and Waggon Makers.		Dentists.		Engineers.	
No.	Total Ages.	No,	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.
				1	56	1	70	1	36				
								1	26				
		1	23										
				1	40								
								1	86			1	44
				2	117	1	81					1	36
		1	58			1	44					2	103
				1	77								
				1	72	1	47					2	100
1	22			1	58								
				1	28								
				2	98	1	56	2	79	1	29		
				1	85	1	52	1	74				
				1	66			2	90			2	68
				1	82			1	80				
				2	105			1	32				
				1	36			2	51				
		2	90	1	33			1	50				
				1	34			1	70				
				1	63								
1	50											1	57
								1	36			1	45
								1	29				
												1	63
				1	69			1	26				
				1	66					1	44		
				1	27	1	67						
						1	64						
1	25			2	92	4	244	1	54				
		3	135	11	532	2	148	1	45			3	120
3	97	7	306	35	1836	14	873	19	864	2	73	14	636

TABLE K.—Deaths by Occupations.—*Continued.*

COUNTIES.	Editors.		Farmers.		Farmers' Wives.		Gentlemen.	
	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.
Algoma	.....	.....	5	340	1	80	.....	.....
Brant	.....	.....	54	3319	44	2550	2	145
Bruce	1	23	84	4499	59	3616	5	386
Carleton	1	38	65	3929	29	1738	5	363
Elgin	.....	.....	45	2659	39	2178	4	288
Essex [2]	.....	.....	59	3410	30	1724	1	28
Frontenac	.....	.....	48	3026	31	1884	4	294
Grey	.....	.....	92	5642	71	4341	.....	.....
Haldimand	.....	.....	31	2080	43	2747	2	151
Halton	.....	.....	28	1749	22	1493	5	331
Hastings	.....	.....	63	4169	46	2791	3	166
Huron	.....	.....	113	6186	69	3873	9	684
Kent	.....	.....	49	3115	46	3105	1	47
Lambton	.....	.....	47	2990	42	2346	4	257
Lanark	.....	.....	46	2834	26	1735	2	76
Leeds and Grenville	.....	.....	105	6589	83	4851	2	138
Lennox and Addington	.....	.....	43	2668	46	2857	.....	.....
Lincoln	.....	.....	37	3219	43	1504	2	138
Middlesex	.....	.....	172	9726	78	4627	6	373
Muskoka	.....	.....	17	950	8	468	.....	.....
Norfolk	.....	.....	52	3345	26	1511	2	118
Northumberland and Durham	.....	.....	98	6259	61	3786	11	755
Ontario	.....	.....	71	4526	53	3428	12	956
Oxford	.....	.....	69	4662	64	3657	2	144
Parry Sound	.....	.....	4	221	3	146	.....	.....
Peel	.....	.....	55	3529	29	1827	5	339
Perth	.....	.....	46	2663	52	2928	3	176
Peterborough	.....	.....	46	2882	21	1200	2	107
Prescott and Russell	.....	.....	34	2203	25	1535	.....	.....
Prince Edward	.....	.....	42	2523	27	1500	6	446
Renfrew	.....	.....	34	1837	20	995	1	28
Simcoe	.....	.....	82	4798	51	3164	6	403
Stormont, Dundas and Glengarry	.....	.....	129	8446	94	5700	.....	.....
Thunder Bay	.....	.....	.....	.....	.....	.....	.....	.....
Victoria	.....	.....	31	1847	27	1641	6	386
Waterloo	1	49	49	3242	52	3468	6	415
Welland	.....	.....	38	2363	33	2020	3	233
Wellington	.....	.....	58	3624	73	4167	4	254
Wentworth	.....	.....	36	2354	36	2732	15	1025
York	1	51	89	5290	96	5341	19	1322
Total	4	161	2266	139713	1699	100954	160	10972

TABLE K.—Deaths by Occupations.—*Continued.*

Gardeners.		Hackmen.		Hunters and Fishermen.		Housewives.		Labourers.		Lumbermen.		Lawyers.	
No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.
.....	.....	.....	.....	5	297	8	351	1	40	1	22	.....	.....
1	65	.....	.....	.....	.....	32	1764	12	584	.....	.....	1	41
.....	.....	.....	.....	.....	.....	20	1007	7	372	.....	.....	.....	.....
.....	.....	2	146	.....	.....	54	2486	26	1193	.....	.....	2	94
.....	.....	.....	.....	.....	.....	20	905	5	237	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	31	1578	14	724	1	60	.....	.....
3	232	1	44	.....	.....	70	3842	30	1641	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	30	1429	3	145	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	13	541	4	217	.....	.....	.....	.....
1	90	.....	.....	.....	.....	29	1599	13	771	.....	.....	1	36
1	25	.....	.....	.....	.....	91	4476	23	1130	.....	.....	.....	.....
.....	.....	.....	.....	1	25	46	2090	9	502	.....	.....	1	76
.....	.....	.....	.....	.....	.....	29	1276	11	604	1	59	.....	.....
.....	.....	.....	.....	.....	.....	20	1113	6	276	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	35	1845	8	481	1	25	.....	.....
.....	.....	.....	.....	.....	.....	58	2812	19	927	.....	.....	.....	.....
.....	.....	.....	.....	2	48	25	1245	3	162	1	30	.....	.....
2	97	1	37	.....	.....	57	4060	20	1193	.....	.....	.....	.....
1	39	.....	.....	.....	.....	100	4554	27	1420	.....	.....	1	65
.....	.....	.....	.....	.....	.....	5	230	.....	.....	2	57	.....	.....
.....	.....	.....	.....	2	149	37	1579	16	799	2	87	.....	.....
.....	.....	.....	.....	2	89	62	3207	26	1617	2	94	4	187
1	76	.....	.....	5	204	54	2950	13	589	.....	.....	1	67
1	75	.....	.....	.....	.....	54	2635	15	751	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	3	157	1	28	1	24	.....	.....
.....	.....	.....	.....	.....	.....	28	1571	13	813	.....	.....	.....	.....
1	35	.....	.....	.....	.....	37	1764	11	591	1	34	.....	.....
.....	.....	.....	.....	.....	.....	16	876	9	417	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	20	1257	12	632	.....	.....	.....	.....
.....	.....	.....	.....	2	137	24	1376	6	342	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	19	1139	8	415	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	57	2588	19	1096	.....	.....	1	68
1	44	.....	.....	.....	.....	44	2347	19	1157	2	126	.....	.....
.....	.....	.....	.....	.....	.....	3	112	4	116	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	23	1041	10	485	1	46	.....	.....
.....	.....	1	35	.....	.....	66	3184	14	857	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	42	2088	19	1101	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	61	3115	17	880	.....	.....	.....	.....
3	156	1	23	.....	.....	146	7898	40	2155	.....	.....	.....	.....
2	150	.....	.....	1	72	314	16005	110	5382	1	66	8	435
18	1084	6	285	20	1021	1886	96092	623	32842	17	730	20	1069

TABLE K.—Deaths by Occupations.—*Continued.*

COUNTIES.	Milliners and Dressmakers.		Masons.		Machinists.		Moulders.	
	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.
Algoma								
Brant	1	20			2	48	1	38
Bruce			2	94				
Carleton	1	20						
Elgin	1	46						
Essex			1	86	1	51	1	50
Frontenac	2	73	2	137			1	53
Grey					2	106		
Haldimand	1	26						
Halton			1	42				
Hastings							1	37
Huron							1	58
Kent	1	21						
Lambton			1	98				
Lanark	2	106						
Leeds and Grenville					2	58	1	29
Lennox and Addington								
Lincoln	1	27	1	60				
Middlesex	2	64	2	110			1	23
Muskoka								
Norfolk			1	75	1	79		
Northumberland and Durham			1	63				
Ontario			1	84	1	49		
Oxford								
Parry Sound								
Peel								
Perth			1	46				
Peterborough								
Prescott and Russell			1	82				
Prince Edward			1	22			1	66
Renfrew	1	38						
Simcoe								
Stormont, Dundas and Glengarry								
Thunder Bay								
Victoria	1	41						
Waterloo			2	129			1	64
Welland			2	107				
Wellington			6	400				
Wentworth	1	22	2	108	7	278	2	78
York	2	49	2	144	3	108	4	210
Total	17	553	30	1887	19	777	15	706

TABLE K.—Deaths by Occupation.—*Continued.*

Millers.		Millwrights.		Miners.		Musicians.		Manufacturers.		Merchants.		Other Occupations.	
No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.
				1	42								
		1	87			1	28			2	80	16	988
1	62	1	58							1	45	2	93
		1	27					1	79	7	333	1	44
						1	22			4	163		
1	80									1	31		
										5	340	10	507
										1	52	2	123
1	72					1	55			2	82		
1	80									2	89	1	51
								1	60	8	460	4	223
2	118									3	105	5	215
1	63							1	45	1	40	1	72
												1	65
1	25									3	135	1	45
2	68									9	437	3	175
								1	45	1	68	1	31
										3	133	4	179
1	49							2	66	13	592	13	637
								1	68			5	230
												1	29
1	39	1	69			1	24	2	128	2	108	11	579
4	299	1	62					3	225	2	128	5	192
2	97									3	128		
1	45									2	105	4	207
		1	72							3	131	5	265
										3	92		
												1	32
		1	38										
		1	56			1	22	1	73	1	35	2	105
										1	37		
2	112									4	202	13	768
1	58									6	353	6	370
				3	126							1	48
								1	77	1	38	2	121
2	152							3	132	2	79	7	328
								1	69	2	133	7	311
										4	188	7	418
1	34	1	73			2	114	2	78	9	461	29	1635
1	69					2	53	7	356	26	1255	50	2495
26	1522	9	552	4	168	9	318	27	1501	137	6658	221	11581

TABLE K.—Deaths by Occupations.—*Continued.*

COUNTIES.	Painters.		Printers.		Pump Makers		Pedlars.	
	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.
Algoma								
Brant	3	92						
Bruce								
Carleton			1	22				
Elgin								
Essex								
Frontenac	2	120						
Grey	2	74						
Haldimand								
Halton	2	112						
Hastings							1	75
Huron	1	34					1	56
Kent	1	23						
Lambton								
Lanark	1	68						
Leeds and Grenville								
Lennox and Addington								
Lincoln							1	56
Middlesex	3	182	1	65				
Muskoka								
Norfolk	1	40						
Northumberland and Durham								
Ontario	3	104						
Oxford	1	44						
Parry Sound								
Peel	1	42						
Perth	2	100						
Peterborough								
Prescott and Russell								
Prince Edward	1	78						
Renfrew								
Simcoe								
Stormont, Dundas and Glengarry								
Thunder Bay								
Victoria								
Waterloo	1	46	1	23			1	84
Welland	1	23						
Wellington	1	42	1	32				
Wentworth	1	53	1	43				
York	8	324	3	121			4	256
Total	36	1601	8	306			8	527

TABLE K.—Deaths by Occupations.—*Continued.*

Plasterers.		Paupers.		Physicians.		Public Officials.		Provincial Land Surveyors.		Railroad Employees.		Sawyers.	
No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.
				3	159					3	171		
		2	166										
				1	41							1	45
		1	79	1	55					2	78		
		1	80							1	27		
		15	840	2	84					1	57		
1	76												
						1	39			1	54		
												1	24
1	79	1	78	1	67	1	66						
		1	32			1	45			1	25		
						1	54						
				2	77	2	139			1	53		
						1	43	1	82			1	80
		1	100	1	64	1	30			1	22		
										1	40		
								1	79			1	29
				1	67	2	59			14	493	1	37
				3	131					2	63	2	69
				3	148								
										1	23		
										2	77	1	22
				2	119	1	57						
		1	85			1	68						
1	97												
						1	53			1	26		
				1	83	4	184						
		4	283	1	53	1	66			1	31		
										1	26		
				1	78					2	66		
1	69			4	275	3	158	2	108	2	85	1	50
1	85			4	205	5	277			6	219	1	43
5	406	27	1743	31	1706	26	1338	4	269	44	1636	10	399

TABLE K.—Deaths by Occupations.—*Continued.*

COUNTIES.	Stonecutters.		Shoemakers.		Shantymen.		Sailors.	
	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.
Algoma								
Brant							1	27
Bruce			3	207				
Carleton			3	235				
Elgin							1	87
Essex			2	121			3	57
Frontenac	1	44	3	195			5	157
Grey	2	109					2	66
Haldimand			1	60				
Halton			1	54				
Hastings			3	177				
Huron	1	27						
Kent			1	56			1	46
Lambton			1	50				
Lanark			1	32				
Leeds and Grenville			2	108			2	93
Lennox and Addington	1	35	2	104			1	37
Lincoln	1	26	2	134			2	148
Middlesex			2	91				
Muskoka								
Norfolk			3	176			2	85
Northumberland and Durham			6	443			2	131
Ontario			3	174				
Oxford	1	22	3	160				
Parry Sound								
Peel			2	55				
Perth			1	48				
Peterborough								
Prescott and Russell								
Prince Edward								
Renfrew			1	45				
Simcoe			3	143			1	23
Stormont, Dundas and Glengarry			1	70			3	134
Thunder Bay			1	61				
Victoria								
Waterloo	1	24	1	67				
Welland	1	25	2	128				
Wellington	1	72						
Wentworth			4	298			1	33
York	1	38	12	684			3	152
Total	11	422	70	4176			30	1276

TABLE K.—Deaths by Occupations.—*Continued.*

Speculators.		Saddlers and Harness Makers.		Seamstresses.		Servants.		Tinsmiths.		Teamsters.		Tavern Keepers.	
No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.
						1	18						
						1	76	1	26				
		1	23			2	45						
				1	29	6	191	1	45			1	32
						3	109						
						3	177			1	45	3	131
		1	28	1	24	10	436	1	52	1	42	3	114
				1	24	1	17	1	21				
		1	43			1	35						
		1	50										
				2	65	4	178			1	52	3	183
						1	23	2	104	1	40	1	39
				1	38	1	27			1	52	1	57
				1	48								
						2	45					1	64
						3	125			2	112	3	184
		1	84					1	80				
						1	70			1	55	3	171
				1	76	17	860					7	281
						2	59						
		1	46	1	27			3	150				
				1	25	4	172	2	115			1	60
		1	27			1	29			1	66	4	166
		1	77	1	26	1	50					2	85
						1	26					2	100
		1	65			2	62					1	39
						1	64			1	51	1	52
				2	81	2	92			1	57	2	102
												1	51
										2	96	5	208
		1	48			15	831					3	150
				1	22	2	83					2	74
						2	48	1	40				
						2	87			2	66	3	148
1	38	2	80	1	38	1	37					2	110
				3	89	7	274	1	45	2	84	5	235
1	65	1	25	5	228	39	1926	1	77	2	103	6	293
2	103	13	596	23	840	139	6272	15	755	19	921	66	3129

TABLE K.—Deaths by Occupations.—*Continued.*

COUNTIES.	Teachers.		Telegraph Operators.		Tailors.		Tanners.	
	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.	No.	Total Ages.
Algoma								
Brant	2	96			2	101		
Bruce	5	216			2	143		
Carleton	2	107			1	54		
Elgin	2	47			1	56		
Essex	2	148			1	56		
Frontenac	2	101						
Grey					2	107		
Haldimand	1	27			1	75		
Halton	3	134			1	28		
Hastings								
Huron	1	21			5	249		
Kent	1	24						
Lambton								
Lanark					2	150		
Leeds and Grenville	3	99			1	46		
Lennox and Addington	1	37						
Lincoln	2	106	1	43	1	48		
Middlesex	3	211			1	66		
Muskoka								
Norfolk					1	68		
Northumberland and Durham	2	110			5	275		
Ontario	2	103			1	72		
Oxford	1	36			2	109		
Parry Sound								
Peel	1	24						
Perth	3	108			1	92		
Peterborough	1	42			1	83		
Prescott and Russell								
Prince Edward	1	31						
Renfrew	1	23			1	76		
Simcoe					1	69	1	63
Stormont, Dundas and Glengarry	3	171			1	85		
Thunder Bay								
Victoria	1	83			3	187		
Waterloo					3	172		
Welland							1	71
Wellington	1	58			1	63	1	57
Wentworth	2	105			9	429		
York	2	63			7	390		
Total	51	2331	1	43	58	3349	3	191

TABLE K.—Deaths by Occupations.—*Continued.*

Volunteers and Soldiers.		Watchmakers and Jewellers.		Weavers.		Total Number of Deaths.	Age.	
No.	Total Ages.	No.	Total Ages.	No.	Total Ages.		Aggregate.	Average.
1	80	.....	.....	.....	.....	24	1270	52·91
.....	.....	1	21	2	163	203	11349	55·90
.....	.....	.....	.....	3	217	210	11662	55·53
4	281	.....	.....	1	79	236	12529	53·08
3	211	.....	.....	1	73	139	7475	53·77
3	158	1	57	.....	.....	176	9621	54·66
.....	.....	.....	.....	6	404	277	15542	57·19
.....	.....	.....	.....	.....	.....	228	13104	57·47
1	73	.....	.....	1	60	117	6860	58·63
.....	.....	1	28	2	159	126	7333	58·19
.....	.....	.....	.....	.....	.....	279	15576	55·82
.....	.....	.....	.....	2	170	291	15342	52·72
.....	.....	.....	.....	.....	.....	163	9297	57·03
.....	.....	.....	.....	2	140	145	8249	56·89
.....	.....	.....	.....	4	267	151	8575	56·78
3	198	.....	.....	.....	.....	341	19102	56·02
1	77	.....	.....	.....	.....	142	8204	57·77
2	106	.....	.....	.....	.....	205	12532	61·13
6	365	2	110	1	68	525	27267	51·93
1	52	.....	.....	.....	.....	44	2262	51·40
1	85	.....	.....	.....	.....	160	8904	55·65
1	35	.....	.....	2	110	339	19848	58·54
.....	.....	1	58	2	134	255	15156	59·43
.....	.....	.....	.....	.....	.....	236	13250	56·14
.....	.....	.....	.....	.....	.....	13	621	47·77
.....	.....	.....	.....	.....	.....	155	9205	59·38
.....	.....	.....	.....	2	158	182	9667	53·11
1	63	.....	.....	1	70	112	6401	57·15
.....	.....	.....	.....	.....	.....	96	5886	61·30
.....	.....	.....	.....	1	74	132	7639	57·87
.....	.....	.....	.....	1	74	94	5013	53·33
2	72	.....	.....	1	48	266	14706	55·28
1	101	.....	.....	3	141	347	21110	60·83
.....	.....	.....	.....	.....	.....	12	463	38·58
2	155	.....	.....	2	135	121	6723	55·56
1	52	.....	.....	2	79	240	13645	56·85
2	149	.....	.....	.....	.....	173	9636	55·69
2	133	3	93	1	82	261	14556	55·77
.....	.....	.....	.....	.....	.....	420	23428	55·78
8	558	.....	.....	5	325	939	48893	52·06
46	3004	9	367	48	3230	8575	477901	55·72

TABLE K.—Deaths by Occupations.—*Concluded.*

OF AND OVER THE AVERAGE AGE 55 YEARS.

——	No.	Average Age.	——	No.	Average Age.
Plasterers	5	81	Millwrights	9	61
Gentlemen	160	68	Gardeners	18	60
Volunteers and Soldiers	46	68	Shoemakers	70	59
Provincial Land Surveyors	4	67	Farmers' Wives	1699	59
Weavers	48	67	Millers	26	58
Pedlars	8	66	Tailors	58	57
Paupers	27	64	Brickmakers	4	56
Tanners	3	64	Coopers	19	56
Masons	30	62	Manufacturers	27	55
Contractors	14	62	Bricklayers	8	55
Farmers	2266	61	Physicians	31	55

UNDER THE AVERAGE AGE.

Lawyers	20	53	Servants	139	45
Blacksmiths	66	52	Engineers	14	45
Labourers	623	52	Boiler-makers	1	44
Clergymen	35	52	Painters	36	44
Brewers	6	51	Chemists and Druggists	7	43
Hunters and Fishermen	20	51	Lumbermen	17	43
Public Officials	26	51	Sailors	30	43
Speculators	2	51	Telegraph Operators	1	43
Housewives	1886	50	Book-keepers and Clerks	85	42
Tinsmiths	15	50	Miners	4	42
Bakers and Confectioners	16	48	Watch-makers and Jewellers	9	41
Cabinet-makers	25	48	Machinists	19	40
Merchants	137	48	Editors	4	40
Carpenters	148	48	Sawyers	10	40
Teamsters	19	48	Stonecutters	11	38
Artists	6	47	Printers	8	38
Hackmen	6	47	Railroad Employees	44	37
Moulders	15	47	Bankers	10	37
Tavern-keepers	66	47	Dentists	2	36
Agents	18	46	Seamstresses	23	36
Butchers	22	46	Barbers	11	34
Saddlers and Harness-makers	13	46	Musicians	9	35
Teachers	51	45	Milliners and Dressmakers	17	32
Carriage and Waggon-makers	19	45	Cooks	3	32

The return of deaths for 1876 having increased so largely over other years, it may be considered as an approximation to the actual mortality of the Province; this Table can therefore be taken as something more than a mere mass of figures.

Substracting from the whole number of deaths, 18,623, all those who died under the age of 20, and also the number of those persons whose ages were not given at the time of their death, there remains 9,269.

Of this number, 8,575 have their occupations registered, leaving 694 that have had no calling assigned to them.

The remarks made in reference to former Tables of this description are equally applicable to this one, viz.:—"That it is necessary in order to understand the correct bearing of the Table, to remember the comparative number of the population who died while engaged in each occupation."

It is easy to believe that occupation has a marked effect upon health, and consequently upon length of life. Occupation shortens life in various ways; by irritating or poisonous substances being inhaled, or introduced into the system in some other way; and by confinement in-doors and want of fresh air and exercise. Furthermore, in modern civilized life, the nearest possible approach to perfection in every art is demanded, labour is divided, and the pursuits of individuals are greatly restricted, and the tendency is to overwork a small part of the organism and under-work the remainder, whereby a large part of it is not called into that activity for which it is designed, and which is necessary to health and long life. This state of things might be largely remedied by the proper application of hygiene.

The average age of the 8,575 persons referred to in this table is 55·72 years. It will be seen that nearly one-fourth of the whole number whose occupations and ages are given were tillers of the soil, and over one-fourth of the remainder were their wives. Their average age was nearly 61. Plasterers were the longest lived, but there were only five deaths returned of that calling. Gentlemen come second on the list, but no doubt many of them were retired members of some profession or calling. This return, "gentleman," as an occupation, is as unsatisfactory as some of the causes of disease, and indeed, is not properly an occupation, or if one, it is one in which all men might engage, in connection with any other. Better return "no occupation" or "independent means;" or if deceased, had at any time of life followed any ordinary occupation for any length of time, it ought to be recorded.

The average age of the three professions, Divinity, Law and Medicine, was 53. It is a noticeable feature that the number of deaths "of the average and over it," amount to 1,578, or 53 per cent. of the whole number recorded. The average age of these persons was 60 years, and they include in their number the principal occupations of the people of this Province, a substantial proof of the healthiness of the climate of Ontario.

As in England and other countries, seamstresses, milliners and dress-makers are, in Ontario, among the shortest lived. They reach little more than half the average age, or that of farmers' wives. This cannot be caused, even in a large degree, by the mere occupation *per se*, but must be mainly the result of habits of life, and over-work, and too little time for exercise in the open air; causes which demand attention, and which might be remedied or overcome.

The last census in England showed that of dress-makers only 1 in 171 reached old age, while of those of "independent means" or "gentlemen," 1 in 4 reached old age.

The great improvement visible in the returns for the year under review is mainly due to the clauses introduced into the new Act, some of which were foreshadowed by my predecessor, amongst which was a clause compelling the registration of the particulars of death before the interment of the body; another clause, compelling Municipalities to pay Division Registrars a fee of ten cents for each birth, marriage and death registered by them, and the appointment of an inspector.

The services of the District Registrars were dispensed with, which resulted in a direct saving to the Department, in round numbers, of the sum of four thousand dollars per annum, the work heretofore performed by them now being done at the head office.

The established practice of sending hand-bills to post offices and other public places, setting forth the persons who are charged with the duty of reporting births, marriages

and deaths, and pointing out the penalties for refusal or neglect, is still adhered to, as well as that of the insertion of paragraphs and advertisements in newspapers in those localities where it was thought advisable.

The Inspector reports that during the year 1876 he visited the offices of about 160 Division Registrars, and personally called upon a number of clergymen, medical men, undertakers, sextons, and overseers of cemeteries, and asked their co-operation in securing the most correct returns possible. In several cases he was compelled to order the prosecution of defaulters, but usually, when the intimation got abroad that legal proceedings would be taken in all cases of neglect, it seemed sufficient to induce those in default to comply at once with the requirements of the Act. He furthermore reports that among those Division Registrars visited, he found a number of them who looked upon the Registration Act as useless, and simply entered any registrations that were offered to them, without putting forth any exertion to successfully carry out the requirements of the Act, but in most of these cases, he states that there is a decided improvement in their returns for the first half-year of 1877 lately received at the Department ; while on the other hand, a number of Division Registrars displayed a great deal of energy to get all the registrations possible, as well as to impress upon the inhabitants of their several divisions, the value of correct registrations. Amongst these may be specially mentioned the Registrars of Belleville, Brantford, Brockville, Eramosa, Kingston, London City, London East, Nepean, Owen Sound, Port Hope, Southampton, Toronto and Wilmot.

Arrangements were perfected through the co-operation of the Hon. the Postmaster-General whereby the forms used by clergymen, medical men, and others for the purpose of making returns of births, marriages, and deaths to the several division registrars should pass through the post-offices as prepaid matter, which thereby contributed in a great measure to fuller returns. He also instructed the several postmasters in the Province to take charge of the different forms, and to supply them on demand to clergymen and others desiring to make returns with respect to registration.

Through the kindness of Mr. Thos. H. Monk, of the Meteorological Department at Toronto, I am enabled to show the influence of the weather on the mortality in the City of Toronto, derived from a comparison with the deaths registered during the year under review. *See* Appendix.

All of which is respectfully submitted.

ARTHUR S. HARDY,
Registrar General.

H. S. CREWE,
Inspector.

APPENDIX.

On the influence of the Weather on Mortality.

On the influence of the weather on mortality, with a comparison of the deaths registered in Toronto during 1876, and the weather for the same period.

The total number of deaths registered for the year was 1664, and the number and per-centage at the different ages as follows :—

Ages.	Number.	Per-centage.
Under 1 year	534	32·09
1 to 5	237	14·24
5 " 10	86	5·18
10 " 20	81	4·88
20 " 30	140	8·41
30 " 40	125	7·51
40 " 50	123	7·39
50 " 60	106	6·37
60 " 70	89	5·35
70 " 80	58	3·48
80 " 90	43	2·58
90 and upwards	6	.36
Ages not specified	36	2·16
	1,664	100·00

The per-centage of deaths under five years of age is exceedingly high—being nearly one-half of the total number of deaths registered.

Taking the population of Toronto at 70,000, we have a death-rate of 23·8 per 1,000, or one death to every 42 persons living. If 1876 can be taken as a fair average, this compares favourably with most of the large cities of the world, excepting as regards children. The death-rate of some of the principal cities of the world is as follows:—

Philadelphia	1 in 50 living.
Toronto (for 1876)	1 " 42 "
London and Paris	1 " 41 "
Boston	1 " 40 "
New York, Vienna and Madras	1 " 33 "
Brussels	1 " 32 "
Bombay	1 " 30 "
Glasgow	1 " 29 "
Liverpool	1 " 28 "
Berlin	1 " 24 "

The question of the influence of the weather on mortality has attracted a considerable amount of attention of late years. Alex. Buchan, Esq., Secretary of the Scottish Meteorological Society, and Dr. Arthur Mitchell, in the July (1875) number of the Journal of the Scottish Meteorological Society, show the results they have arrived at after a careful examination of the returns for London, England, as furnished by the Registrar-General.

The period embraced in the investigation is thirty years, from 1845 to 1874, and the results prove that, *at least for one city*, the weather has a very considerable influence on mortality. Investigations, however, already show "that in different places deaths from particular diseases exhibit very different degrees of sensitiveness to weather," and although in this paper I have endeavoured to point out certain peculiarities and coincidences, I will not attempt to compare the results of an investigation which embraces a period of one year only, with that of thirty years. My object has been rather to call attention to the necessity for proper registration, not only of the mortality, but also of the health of the people, in order that sufficient accurate data may be obtained for investigating this important question. Mr. Buchan's conclusion as to the best method of conducting such a research is as follows: "That a division of the year into months is insufficient in inquiring into the influence of weather on mortality, and that a division into weeks is essential, is immediately apparent on a simple inspection of the curves; it is evident, for instance, that in the case of the curves for diarrhœa, convulsions, phthisis, and many other diseases, monthly averages would either wholly obliterate their more striking features, or smooth them down to such an extent, that they could not be regarded as any longer disclosing the real relations of weather to the progress of mortality from these diseases."

The data, as regards the mortality, has been divided into forty-eight parts for the year, instead of fifty-two. Although this may answer very well for its present purpose, I should certainly recommend that in future, any record of registration should be divided into weeks. The observations of the different meteorological elements, and their difference from their averages (which I have had divided into four monthly parts to correspond with the mortality returns), I have obtained from the Magnetic Observatory, Toronto, by permission of the Director, Professor Kingston.

The data from which the curves (represented on plates I., II., III. and IV.) are drawn will be found at the end of this paper.

Plate I. represents the curve of the various meteorological elements.

Plate II. the deaths from all causes.

Plate III. " " certain classes of diseases.

Plate IV. is Plates I. and II. combined.

The most remarkable features in the curve of deaths from all causes, all ages and both sexes, are, *first*, the sudden and apparently abnormal rise in mortality in the second portion of August. As will be seen, this is due principally to the deaths among children under 5 years of age, 55 of the 80 deaths registered in that period having occurred among those under 5 years of age, 40 *of which were under* 1 *year.*

Second, the fall in the last portion of September, when the total number of deaths registered is 10, six being over 5 years of age and four under. The rise in mortality follows an increase of temperature above the normal and a decrease of humidity, and the fall, an increase of humidity and rainfall.

It will be noticed that for the year 1876 a decrease in humidity is generally followed by a rise in the death rate, and vice versa. The abnormal rise in mortality in August may possibly be accounted for by the fact that no rain fell during that month, it being the dryest August since the commencement of the record in 1840. It was also the month of least humidity. September, which was the month in which the minimum number of deaths was reached, was that in which the days of rain were most frequent. The classes of disease shewing a marked rise in the period first mentioned are the miasmatic, which reached its maximum 32, and the developmental diseases of children, which also reached its maximum (11.) The character of this curve at the period when it is most above the average, viz. : from the first portion of July to the latter portion of September, is mostly influenced by that of the miasmatic class.

On plate III are given the curves for five of the principal classes of disease ; but as the peculiar features are apt to be changed in the course of further investigation I will only point out a few such as coincide with and bear out the research of Mr. Buchan. That of the Miasmatic class has been partly noticed above the deaths when it reached its maximum, being from the following causes : Cholera Infantum, 13; Diarrhœa, 11 ; Whooping Cough, 4 ; Dysentery, 2 ; and Cholera, 2. The rise above the average from the first portion of July to the latter portion of September is due almost entirely to deaths from Cholera Infantum and Diarrhœa, both of which reach their maximum in the second portion of August. The slight rise in January is due to Typhoid Fever, which prevailed more at that time than at any portion of the year. No deaths were registered from Whooping Cough from October till the latter part of January. The maximum from this cause occurred in April. This corresponds with Mr. Buchan's results.

The curve for Nervous Diseases shows a marked maximum in the last portion of March, when it reaches 13. At this period the Humidity curve shows a marked rise, the precipitation is also very high and the temperature a good deal below the average. This corresponds with what is shown by Mr. Buchan and Dr. Mitchell in the paper quoted above, where they state "about one half of the diseases which begin to show an increase are connected more or less closely with the Nervous System." This is in the period which they characterize as damp and cold.

The curve of deaths arising from diseases of the Respiratory Organs shows a sustained rise from the third portion of April till the first portion of June. During the whole of this period the temperature, although rising, continues, with one exception, below the average. The exception is followed by a fall in the Mortality curve.

The curve of the Developmental diseases of children has already been noticed.

Enough has been stated, both in Mr. Buchan's article and these few remarks on the deaths in Toronto, to show that the weather influences mortality in various ways ; but it would be far more serviceable if returns regarding the *health* of the people could be furnished. It would enable us to prove more decisively the connection between the weather and health. An extended system of observation of this kind would undoubtedly prove of great benefit.

There is perhaps no better field for the proper solution of this question than this continent, where the atmospheric changes are so well followed and foretold, and accurate information as to the influence of such changes could be obtained by a proper system of registration of the state of health. By this means we may perhaps be able to foretell the changes in the health of the people and give warnings of approaching epidemics as we now predict coming weather. We should also be better able to ascertain the climate most suitable for persons afflicted with certain diseases.

As the system of registration in Ontario is rapidly approaching that accuracy so desirable and without which scientific results can scarcely be obtained ; and as accurate meteorological observations have been and still continue to be taken in this province, it would undoubtedly prove a good place in which to commence such a research, and I further hope that, with that end in view, attention will be called to this subject.

THOS. MONK.

TABLE L.

TORONTO.—Means of the Meteorological Elements for 1876, and their Differences from the average of 37 years.

Date.	Pressure.		Temperature.		Humidity.		Clouds.	Rain & Snow		Number of Hours when the Wind blew from								
	Mean.	Difference from Average.	Mean.	Difference from Average.	Mean.	Diff. from Average.	Mean.	Total Amount.	No. of days.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calms.
										JANUARY.								
	inches.		°	°	per cent			inches.										
1 to 8	29·7336	+·0870	31·83	+10·58	79	−3	72	·340	3	15	9	26	4	1	37	26	50	0
9 to 16	·5571	−·0845	23·81	+2·49	79	−4	74	·210	4	16	0	10	6	7	61	47	21	0
17 to 24	·5525	−·0893	32·30	+10·62	81	−2	80	·740	5	7	4	3	6	17	62	60	7	2
25 to 31	·6677	+·0195	28·45	+6·23	85	+3	85	·980	7	8	17	36	15	32	44	44	44	0
										FEBRUARY.								
1 to 7	29·7863	+·1317	20·06	−2·66	84	+2	59	1·150	4	9	0	0	9	33	43	35	39	0
8 to 14	·5030	−·0906	32·85	+9·68	86	+4	69	2.100	4	24	30	53	2	5	26	21	7	0
15 to 21	·5322	−·1113	27·44	+3·62	77	−5	77	·420	6	14	5	16	0	1	20	86	26	0
22 to 29	·7365	+·1117	15·81	−9·10	78	−3	77	·640	5	12	69	13	0	0	7	25	66	0
										MARCH.								
1 to 8	29·7604	+·1581	27·89	+1·48	77	−3	58	·206	5	29	0	6	14	46	23	36	37	1
9 to 16	·7074	+·1136	25·36	−3·26	79	+1	68	1·130	4	36	14	83	3	2	1	11	42	0
17 to 24	·5951	+·0172	21·29	−10·02	76	0	60	1·630	4	18	14	33	1	1	20	50	55	0
25 to 31	·2972	−·2850	30·05	−4·02	83	+9	85	2·710	5	4	26	20	0	2	39	53	24	0
										APRIL.								
1 to 8	29·6270	+·0366	34·12	−2·81	73	0	53	·610	3	14	13	25	7	1	42	29	61	0
9 to 16	·4626	−·1347	38·21	−1·78	70	−1	80	·555	5	25	49	19	1	9	29	35	24	1
17 to 24	·7013	+·1061	38·54	−4·46	69	−2	62	·260	2	22	10	21	8	8	21	59	43	0
25 to 30	·5618	−·0221	43·38	−2·19	62	−8	54	·410	4	9	0	20	8	22	21	16	48	0
										MAY.								
1 to 8	29·5552	−·0153	46·69	−1·40	73	+3	68	·650	5	13	18	42	5	20	20	28	46	0
9 to 16	·7097	+·1542	46·62	−3·28	70	0	73	·910	6	11	31	30	6	25	14	24	47	4
17 to 24	·6630	+·1131	55·68	+2·00	73	+3	45	1·410	3	18	11	42	9	28	44	13	27	0
25 to 31	·5435	−·0047	50·44	−5·77	64	−6	20	·260	2	8	40	29	30	3	33	17	8	0
										JUNE.								
1 to 8	29·5340	−·0331	59·29	+0·68	77	+ 7	63	·630	3	12	19	38	11	28	27	38	19	0
9 to 16	·6364	+·0529	68·72	+7·55	81	+11	58	·350	1	4	37	79	22	19	27	2	1	1
17 to 24	·6337	+·0370	65·40	+1·76	75	+ 6	53	·600	4	0	0	38	21	29	49	43	10	2
25 to 30	·4975	−·1042	69·97	+4·47	69	+ 1	59	·011	1	21	4	4	15	5	18	40	29	1

TABLE L.

TORONTO.—Means of the Meteorological Elements for 1876, and their Differences from the average of 37 years.—*Concluded.*

Date.	Pressure.		Temperature.		Humidity.		Clouds.	Rain & Snow		Number of Hours when the Wind blew from								
	Mean.	Difference from Average.	Mean.	Difference from Average.	Mean.	Diff. from Average.	Mean.	Total Amount.	No. of days.	N.	N.E.	E.	S.E.	S.	S.W.	W.	S.W.	Calms.
JULY.																		
	inches.		°	°	per cent			inches										
1 to 8	29·5310	−·0547	67·82	+0·87	81	+14	60	1·450	6	8	18	30	21	23	51	29	5	7
9 to 16	·6240	+·0155	74·42	+6·41	76	+ 6	45	1·480	4	13	4	2	7	50	21	33	58	4
17 to 24	·6120	+·0224	67·76	−0·67	72	+ 3	34	·170	3	32	11	8	20	16	27	23	54	1
25 to 31	·6195	+·0304	64·56	−3·69	62	+ 2	61	·190	2	31	14	25	9	30	15	9	35	0
AUGUST.																		
1 to 8	29·7425	+·1455	72·77	+4·86	67	− 4	38	. . .	0	16	39	35	31	22	23	9	15	2
9 to 16	·6882	+·0805	73·39	+6·59	73	+ 1	40	. . .	0	11	37	32	45	29	7	10	21	0
17 to 24	·6246	−·0024	67·37	+2·00	67	− 6	58	R	0	41	20	42	25	27	3	7	27	0
25 to 31	·6199	−·0130	67·05	+3·47	61	−13	52	. . .	0	9	4	4	9	35	27	27	51	2
SEPTEMBER.																		
1 to 8	29·600-	−·0503	61·37	−0·13	62	−13	46	·120	3	23	8	26	8	8	18	24	77	0
9 to 16	·694[illegible]	+·0303	57·15	−1·46	74	− 2	73	·130	4	38	52	58	14	5	0	1	24	0
17 to 24	·5981	−·0763	59·28	+3·96	87	+10	82	1·720	5	16	55	84	4	0	8	5	20	0
25 to 30	·4753	−·2015	51·26	−1·13	76	− 1	80	·485	4	1	0	0	0	10	29	72	31	1
OCTOBER.																		
1 to 8	29·4021	−·2687	45·98	−3·72	73	− 5	77	·330	6	0	0	0	2	17	97	71	2	0
9 to 16	·6298	−·0252	38·76	−8·31	66	−12	71	·125	3	0	0	0	0	22	50	67	53	0
17 to 24	·4434	−·1852	46·38	+1·48	78	0	47	·860	5	6	36	57	17	10	27	15	24	0
25 to 31	·6973	+·0849	39·54	−5·56	80	+ 2	73	·150	2	1	45	23	10	17	19	40	13	0
NOVEMBER.																		
1 to 8	29·5463	−·0544	44·17	+2·90	83	+5	91	1·058	5	13	15	33	21	9	46	55	0	0
9 to 16	·7038	+·1047	36·77	−1·98	80	+1	81	·010	2	34	51	14	12	30	5	15	27	1
17 to 24	·6189	+·0679	39·05	+3·57	84	+4	97	·430	5	7	27	84	5	3	38	24	3	1
25 to 30	·3991	−·2230	26·45	−5·77	87	+7	84	1·160	6	33	13	9	13	0	14	31	30	1
DECEMBER.																		
1 to 8	29·5157	−·1296	21·35	−7·53	81	0	65	·090	4	33	0	0	0	0	48	52	59	0
9 to 16	·4587	−·1994	18·35	−7·13	81	1	75	·810	6	20	15	2	23	2	55	55	20	0
17 to 24	·7583	+·0985	11·03	−11·96	81	1	77	1·300	7	86	34	9	2	0	17	19	25	0
25 to 31	·5977	−·0560	18·36	−3·30	85	+2	85	1·450	6	19	56	2	3	0	35	56	17	0

CITY OF TORONTO.

AGES AND CAUSES OF DEATH,

1876.

TABLE M.—Showing the Ages and Causes of Death of the persons who

MONTHS.	Sex.	AGE. Under 1 year.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 and upwards.	Not given.	Total.	Small Pox.	Measles.
January 1 to 8	M ..	2	1	1	2	2	....	2	4	2	1	1	....	1	19	....	....
	F ..	3	3	....	2	1	1	3	....	....	....	2	....	....	15	....	....
	Total	5	4	1	4	3	1	5	4	2	1	3	....	1	34	....	....
" 9 to 16.....	M ..	2	1	1	3	2	2	1	5	1	....	1	....	....	19	....	....
	F ..	1	1	....	3	....	2	1	1	....	2	2	....	....	13	....	....
	Total	3	2	1	6	2	4	2	6	1	2	3	....	....	32	....	....
" 17 to 24.....	M ..	5	2	1	1	2	....	....	....	....	1	....	....	....	12	....	....
	F ..	2	4	1	....	5	4	....	2	....	....	....	....	....	18	....	....
	Total	7	6	2	1	7	4	....	2	....	1	....	....	....	30	....	....
" 25 to 31.....	M ..	7	....	....	1	3	1	1	....	2	....	....	....	2	17	....	....
	F ..	2	3	1	1	2	3	....	2	1	....	....	....	....	15	....	....
	Total	9	3	1	2	5	4	1	2	3	....	....	....	2	32	....	....
February 1 to 7	M ..	4	1	2	....	....	2	1	1	....	....	....	....	1	12	....	....
	F ..	5	1	....	....	....	....	....	1	1	1	1	....	....	10	....	....
	Total	9	2	2	....	....	2	1	2	1	1	1	....	1	22	....	....
" 8 to 14.....	M ..	4	2	2	1	1	....	3	1	....	....	....	....	....	14	....	....
	F ..	3	4	....	2	1	2	1	1	....	1	....	....	1	16	....	....
	Total	7	6	2	3	2	2	4	2	....	1	....	....	1	30	....	....
" 15 to 21.....	M ..	4	1	1	....	2	2	7	1	....	....	....	....	....	18	....	....
	F ..	5	2	4	1	1	1	1	....	2	....	1	....	....	18	....	....
	Total	9	3	5	1	3	3	8	1	2	....	1	....	....	36	....	....
" 22 to 28.....	M ..	7	1	1	2	....	1	3	1	5	....	1	....	....	22	....	....
	F ..	1	1	1	....	3	....	2	3	1	2	....	....	....	14	....	....
	Total	8	2	2	2	3	1	5	4	6	2	1	....	....	36	....	....
March 1 to 8	M ..	3	2	1	1	2	2	2	2	2	....	....	....	....	17	....	....
	F ..	3	4	1	1	7	....	3	2	....	1	1	....	....	23	....	....
	Total	6	6	2	2	9	2	5	4	2	1	1	....	....	40	....	....
" 9 to 16.....	M ..	5	3	1	....	....	3	1	1	4	....	....	....	....	18	....	....
	F ..	4	2	1	3	1	....	1	1	....	1	....	....	....	14	....	....
	Total	9	5	2	3	1	3	2	2	4	1	....	....	....	32	....	....

died in the City of Toronto during the year ending 31st December, 1876.

Miasmatic.																				Enthetic.			
Scarlatina.	Diphtheira.	Quinsy.	Whooping Cough.	Infantile Fever.	Erysipelas.	Metria (or Puerperal Fever).	Influenza.	Dysentery.	Diarrhœa.	Cholera Infantum.	Cholera.	Ague.	Remittent Fever.	Typhoid Fever.	Rheumatism.	Fever.	Scarlet Fever.	Croup.	Total Miasmatic.	Stricture of Urethra.	Hydrophobia.	Syphilis.	Total Enthetic.
....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	..	..	1	..	3	....	....	....	....
....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	..	..	..	..	2	....	....	....	....
....	....	....	....	....	....	1	....	....	1	....	....	....	....	2	..	..	1	..	5	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	4	..	..	1	..	5	....	....	....	....
....	1	....	....	....	....	....	....	....	....	....	....	....	....	1	..	..	..	1	3	....	....	....	....
....	1	....	....	....	....	....	....	....	....	....	....	....	....	5	..	..	1	1	8	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	..	1	..	1	5	....	....	....	....
....	....	....	....	....	....	1	....	....	....	....	....	....	....	3	..	..	1	2	7	....	....	....	....
....	....	....	....	....	....	1	....	....	....	....	....	....	....	6	..	1	1	3	12	....	....	....	....
....	1	....	1	....	....	....	....	....	....	....	....	....	....	2	..	..	..	..	4	....	....	1	1
....	....	....	1	....	1	....	....	....	....	....	....	....	....	1	..	..	..	..	3	....	....	....	....
....	1	....	2	....	1	....	....	....	....	....	....	....	....	3	..	..	..	..	7	....	....	1	1
1	1	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	1	..	3	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	..	..	..	2	....	....	....	....
1	1	....	....	....	....	....	....	....	....	....	....	....	....	1	1	..	1	..	3	....	....	....	....
....	1	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	..	2	3	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	..	..	1	..	2	....	....	....	....
....	1	....	....	....	....	....	....	....	....	....	....	....	....	1	..	..	1	2	5	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	..	1	1	....	....	2	2
1	1	....	1	....	....	1	....	....	....	....	....	....	....	..	..	..	2	1	7	....	....	....	....
1	1	....	1	....	....	1	....	....	....	....	....	....	....	.	..	..	2	2	8	....	....	2	2
....	1	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	..	1	2	....	....	....	....
2	....	....	1	....	....	....	....	....	....	....	....	....	....	2	1	..	..	..	6	....	....	....	....
2	1	....	1	....	....	....	....	....	....	....	....	....	....	2	1	..	..	1	8	....	....	....	....
....	2	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	..	1	3	....	....	....	....
1	....	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	1	..	2	....	....	....	....
1	2	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	1	1	5	....	....	....	....
1	....	....	2	....	....	....	....	....	1	....	....	....	....	..	..	..	..	1	5	....	....	....	....
1	....	....	....	....	....	....	....	....	1	....	....	....	....	..	..	..	..	..	2	....	....	....	....
2	....	....	2	....	....	....	....	....	2	....	....	....	....	..	..	..	..	1	7	....	....	....	....

TABLE M.—Showing the Ages and Causes of Death of the persons

MONTHS.	Sex.	AGE. Under 1 year.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 and upwards.	Not given.	Total.	Small Pox.	Measles.
March 17 to 24	M	13	3	3	4	....	3	1	....	....	1	2	....	1	31	....	....
	F	2	4	2	....	2	....	....	....	....	1	....	....	....	11	....	....
	Total	15	7	5	4	2	3	1	....	....	2	2	....	1	42	....	....
" 25 to 31	M	7	2	....	....	1	1	1	....	2	1	....	....	....	15	....	....
	F	7	6	....	1	1	2	2	2	1	1	1	....	....	24	....	....
	Total	14	8	....	1	2	3	3	2	3	2	1	....	....	39	....	....
April 1 to 8	M	6	2	1	....	3	1	3	....	2	1	1	....	....	20	....	....
	F	3	4	1	2	3	....	1	1	4	1	2	....	....	22	....	....
	Total	9	6	2	2	6	1	4	1	6	2	3	....	....	42	....	....
" 9 to 16	M	5	1	....	....	1	3	3	....	....	....	....	....	....	13	....	....
	F	3	4	1	....	1	....	....	....	2	....	....	1	....	12	....	....
	Total	8	5	1	....	2	3	3	....	2	....	....	1	....	25	....	....
" 17 to 24	M	7	1	2	1	3	3	1	1	1	2	2	....	....	24	....	....
	F	5	4	2	....	2	1	4	1	2	1	....	....	2	24	....	....
	Total	12	5	4	1	5	4	5	2	3	3	2	....	2	48	....	....
" 25 to 30	M	9	2	4	....	3	3	1	2	1	....	....	....	....	25	....	....
	F	4	....	1	....	1	1	....	2	1	....	....	....	2	12	....	....
	Total	13	2	5	....	4	4	1	4	2	....	....	....	2	37	....	....
May 1 to 8	M	5	1	4	4	3	2	1	2	2	1	1	1	....	27	....	....
	F	4	5	2	1	1	2	1	4	1	....	....	....	....	21	....	....
	Total	9	6	6	5	4	4	2	6	3	1	1	1	....	48	....	....
" 9 to 16	M	5	4	1	1	3	....	1	....	....	1	1	....	4	21	....	....
	F	4	1	....	....	2	1	1	6	2	....	1	....	1	19	....	....
	Total	9	5	1	1	5	1	2	6	2	1	2	....	5	40	....	....
" 17 to 24	M	6	2	2	1	....	....	2	....	1	3	1	....	....	18	....	....
	F	7	2	2	2	....	1	1	....	2	1	1	....	....	19	....	....
	Total	13	4	4	3	....	1	3	....	3	4	2	....	....	37	....	....
" 25 to 31	M	3	2	....	....	....	....	2	1	1	....	....	....	....	9	....	....
	F	5	2	1	3	1	1	....	....	1	1	....	....	1	16	....	....
	Total	8	4	1	3	1	1	2	1	2	1	....	....	1	25	....	....

who died in the City of Toronto during the year 1876.—*Continued.*

Miasmatic.																				Enthetic.			
Scarlatina.	Diphtheria.	Quinsy.	Whooping Cough.	Infantile Fever.	Erysipelas.	Metria (or Puerperal Fever).	Influenza.	Dysentery.	Diarrhœa.	Cholera Infantum.	Cholera.	Ague.	Remittent Fever.	Typhoid Fever.	Rheumatism.	Fever.	Scarlet Fever.	Croup.	Total Miasmatic.	Stricture of Urethra.	Hydrophobia.	Syphilis.	Total Enthetic.
1	1	....	2	....	....	....	....	....	....	....	....	....	....	..	..	..	1	..	5	....	....	....	....
....	2	....	....	....	....	....	....	....	....	....	....	....	....	1	..	..	1	..	4	....	....	....	....
1	3	....	2	....	....	....	....	....	....	....	....	....	....	1	..	..	2	..	9	....	....	....	....
....	....	....	1	....	....	....	....	....	....	....	....	....	....	..	..	..	..	..	1	....	....	....	....
....	....	....	1	....	....	1	....	....	1	....	....	....	....	..	..	..	1	1	5	....	....	....	....
....	....	....	2	....	....	1	....	....	1	....	....	....	....	..	..	..	1	1	6	....	....	....	....
....	....	....	3	....	....	....	....	....	1	....	....	....	....	..	..	..	2	..	6	....	....	....	....
....	3	....	....	....	2	1	....	....	....	....	....	....	....	..	..	..	..	..	6	....	....	....	....
....	3	....	3	....	2	1	....	....	1	....	....	....	....	..	..	..	2	..	12	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	..	..	....	....	....	....	....
....	1	....	2	....	....	....	....	....	....	....	....	....	....	..	..	..	..	..	3	....	....	....	....
....	1	....	2	....	..	....	....	....	....	....	....	....	....	..	..	..	..	..	3	....	....	....	....
1	....	....	3	....	....	....	....	1	....	....	....	....	....	..	..	..	1	..	6	....	....	1	1
....	....	....	2	..	....	....	....	1	....	....	....	....	....	..	..	..	..	..	3	....	....	....	....
1	....	....	5	....	....	....	....	2	....	....	....	....	....	..	..	..	1	..	9	....	....	1	1
1	....	....	....	....	1	....	....	....	....	....	3	....	....	..	..	..	..	..	5	....	....	1	1
....	....	....	1	....	....	....	....	....	....	....	....	....	....	..	..	..	..	..	1	....	....	....	....
1	....	....	1	....	1	....	....	....	....	....	3	....	....	..	..	..	..	..	6	....	....	1	1
....	....	....	1	....	....	....	....	....	....	1	....	....	....	4	..	..	3	..	9	....	....	....	....
1	....	....	2	....	....	....	....	....	....	....	....	....	....	..	..	..	2	..	5	....	....	....	....
1	....	....	3	....	....	....	....	....	....	1	....	....	....	4	..	..	5	..	14	....	....	....	....
....	....	....	....	....	....	....	....	....	1	....	....	....	....	..	..	..	..	1	2	....	....	....	....
....	....	....	2	....	....	1	..	....	....	....	1	....	....	..	1	..	..	..	5	....	....	....	....
....	....	....	2	....	....	1	....	....	1	....	1	....	....	..	1	..	..	1	7	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	1	..	1	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	..	1	1	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	1	1	2	....	....	....	....
....	....	....	1	....	....	....	....	....	....	....	....	....	....	..	..	..	..	..	1	....	....	....	....
....	1	....	2	....	....	1	....	....	1	....	....	....	....	..	..	..	..	..	5	....	....	....	....
....	1	....	3	....	....	1	....	....	1	....	....	....	....	..	..	..	..	..	6	....	....	....	....

TABLE M.—Showing the Ages and Causes of Death of the persons

MONTHS.	Sex.	AGE. Under 1 year.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 and upwards.	Not given.	Total.	Small Pox.	Measles.
June 1 to 8	M	8	2	1	2	....	2	1	2	1	2	....	....	....	21	....	....
	F	2	3	....	....	3	....	2	....	1	....	1	....	1	13	....	....
	Total	10	5	1	2	3	2	3	2	2	2	1	....	1	34	....	....
" 9 to 16	M	8	2	....	....	1	....	1	3	....	1	....	....	1	17	....	.....
	F	1	1	....	1	....	2	1	....	....	1	....	....	1	8	....	.....
	Total	9	3	....	1	1	2	2	3	....	2	....	....	2	25	....	....
" 17 to 24	M	8	1	.....	....	2	1	1	1	1	....	....	....	....	15	....	....
	F	2	1	....	2	1	1	....	....	....	....	....	....	1	8	....	....
	Total	10	2	....	2	3	2	1	1	1	....	....	....	1	23	....	....
" 25 to 30	M	3	....	2	1	1	1	1	....	1	....	....	....	....	10	....	....
	F	1	3	1	3	....	....	1	1	....	....	....	....	1	11	....	....
	Total	4	3	3	4	1	1	2	1	1	....	....	....	1	21	....	....
July 1 to 8	M	9	1	1	2	2	3	1	2	1	....	....	....	1	23	....	....
	F	5	2	....	1	1	1	....	....	....	1	....	....	1	12	....	....
	Total	14	3	1	3	3	4	1	2	1	1	....	....	2	35	....	....
" 9 to 16	M	10	4	....	2	....	5	....	....	....	....	1	....	....	22	....	....
	F	10	1	1	....	....	....	2	1	....	....	....	....	2	17	....	....
	Total	20	5	1	2	....	5	2	1	....	....	1	....	2	39	....	....
" 17 to 24	M	15	2	....	....	2	2	1	....	1	1	....	....	....	24	....	....
	F	13	2	1	....	....	3	2	1	1	1	....	....	....	24	....	....
	Total	28	4	1	....	2	5	3	1	2	2	....	....	....	48	....	....
" 25 to 31	M	17	....	2	4	1	1	1	1	....	1	....	....	....	28	....	....
	F	9	3	....	....	2	1	2	....	....	....	....	....	....	17	....	....
	Total	26	3	2	1	3	2	3	..	....	1	....	....	....	45	....	....
August 1 to 8	M	13	2	1	1	5	4	....	....	1	....	....	....	....	27	....	....
	F	8	....	....	....	....	3	1	2	....	1	1	....	4	20	....	....
	Total	21	2	1	1	5	7	1	2	1	1	1	....	4	47	....	....
" 9 to 16	M	20	5	....	....	2	....	....	9	1	2	..	....	2	41	....	....
	F	20	10	1	1	2	....	2	....	3	....	..	....	....	39	....	....
	Total	40	15	1	1	4	..	2	9	4	2	..	....	2	80	....	..

who died in the City of Toronto during the year 1876.—*Continued.*

Miasmatic.																				Enthetic.			
Scarlatina.	Diphtheria.	Quinsy.	Whooping Cough.	Infantile Fever.	Erysipelas.	Metria (or Puerperal Fever).	Influenza.	Dysentery.	Diarrhœa.	Cholera Infantum.	Cholera.	Ague.	Remittent Fever.	Typhoid Fever.	Rheumatism.	Fever.	Scarlet Fever.	Croup.	Total Miasmatic.	Stricture of Urethra.	Hydrophobia.	Syphilis.	Total Enthetic.
....	....	....	1	.....	....	....	....	....	....	....	....	....	....	..	..	..	..	..	1	....	....	....	....
....	....	....	....	....	1	....	....	....	....	....	....	....	....	..	..	..	1	..	2	....	....	....	....
....	....	....	1	....	1	....	....	....	....	.....	....	.....	....	..	..	..	1	..	3	....	.....	....	....
....	.....	..	....	....	....	....	....	....	2	.....	....	....	....	1	1	..	..	1	5	....	....	....	....
....	....	....	1	....	....	....	....	....	....	....	....	.....	....	1	..	..	..	..	2	....	....	....	....
....	....	....	1	....	....	....	....	....	2	....	....	....	....	2	1	..	..	1	7	....	....	....	....
....	....	....	....	....	..	....	....	1	....	....	....	.....	....	..	1	..	..	..	2	....	....	....	....
....	1	.....	....	....	....	....	....	....	....	....	....	....	....	1	..	..	..	..	2	....	....	....	....
....	1	....	....	....	....	....	....	1	....	....	....	....	....	1	1	..	..	..	4	....	....	....	....
....	.....	....	1	....	....	....	....	....	....	1	.....	....	....	..	..	..	..	..	2	....	....	....	....
....	1	....	2	....	....	....	....	....	....	....	....	....	....	..	..	..	1	..	4	....	....	....	....
....	1	....	3	....	....	.....	....	.....	....	1	....	....	....	..	..	..	1	..	6	....	....	....	....
....	....	.....	1	....	....	....	.....	....	....	....	....	....	....	..	..	..	..	..	2	....	....	....	....
....	....	.....	2	....	....	....	....	....	1	.....	1	....	.....	..	..	..	..	..	3	....	1	....	1
....	....	....	3	....	....	....	....	....	1	....	1	....	....	..	..	..	..	..	5	....	1	....	1
.....	....	....	1	....	....	....	....	1	2	4	....	....	....	..	..	..	..	1	9	....	....	....	....
....	....	....	.....	....	....	....	....	....	1	1	....	....	....	..	..	..	1	..	3	....	....	....	....
.....	....	....	1	....	....	....	....	1	3	5	....	.....	....	..	..	..	1	1	12	....	....	....	....
....	.....	....	1	.....	....	....	....	1	6	2	....	....	....	..	..	..	..	..	10	....	....	....	....
....	....	....	1	....	1	....	....	1	2	1	....	.....	1	..	..	..	1	..	8	....	....	....	....
....	....	.....	2	.....	1	.....	....	2	8	3	....	....	1	..	..	..	1	..	18	....	....	....	....
....	1	....	1	.....	....	....	.....	1	4	3	....	....	....	3	..	..	..	1	14	....	....	....	....
....	....	....	....	....	1	....	.....	1	1	....	....	....	....	..	..	..	1	..	4	....	1	....	1
....	1	....	1	....	1	....	....	2	5	3	....	....	....	3	..	..	1	1	18	....	1	....	1
....	....	....	....	....	....	....	....	....	3	5	....	....	....	1	..	..	1	1	10	....	....	....	....
....	.....	....	....	....	....	1	....	1	2	2	1	.....	....	..	..	..	..	..	7	....	....	....	....
....	....	....	....	....	....	1	....	1	5	7	1	....	....	1	..	..	1	1	17	....	....	....	....
....	....	....	2	....	.....	....	....	2	2	5	....	....	....	..	..	..	..	..	11	....	....	....	....
....	.....	....	2	....	....	....	....	....	9	8	2	....	....	..	..	..	..	..	21	....	....	....	....
....	....	....	4	....	....	....	....	2	11	13	2	....	....	..	..	..	..	..	32	....	....	....	....

TABLE M.—Showing the Ages and Causes of Death of the persons

MONTHS.	Sex.	AGE. Under 1 year.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 and upwards.	Not given.	Total.	Small Pox.	Measles.
August 17 to 24.....	M ..	12	1	....	....	1	....	....	1	1	....	....	1	1	18	....	....
	F ..	8	3	1	....	3	2	1	1	1	....	2	....	....	22	....	....
	Total	20	4	1	....	4	2	1	2	2	....	2	1	1	40	....	....
" 25 to 31.....	M ..	6	4	....	....	1	....	1	2	1	....	....	....	....	15	....	....
	F ..	12	4	....	....	4	2	....	1	1	....	2	....	....	26	....	....
	Total	18	8	....	....	5	2	1	3	2	....	2	....	....	41	....	....
September 1 to 8	M ..	14	7	....	1	....	2	2	....	3	....	1	....	....	30	....	1
	F ..	9	4	1	1	2	3	2	....	1	....	2	....	....	25	....	....
	Total	23	11	1	2	2	5	4	....	4	....	3	....	....	55	....	1
" 9 to 16....	M ..	11	2	....	....	1	2	....	....	....	2	....	....	....	18	....	....
	F ..	7	1	....	1	1	....	....	3	....	....	....	....	....	13	....	....
	Total	18	3	....	1	2	2	....	3	....	2	....	....	....	31	....	....
" 17 to 24....	M ..	14	4	....	1	2	1	1	....	....	....	....	....	....	23	....	..
	F ..	5	1	....	....	4	3	1	....	....	3	....	....	....	17	....	....
	Total	19	5	....	1	6	4	2	....	....	3	....	....	....	40	....	....
" 25 to 30....	M ..	....	1	....	1	....	1	....	....	2	....	....	....	....	5	....	....
	F ..	1	2	....	....	....	1	....	....	....	....	1	....	....	5	....	....
	Total	1	3	....	1	....	2	....	....	2	....	1	....	....	10	....	....
October 1 to 8	M ..	6	5	2	1	1	3	2	2	1	....	....	....	....	23	....	1
	F ..	4	2	1	....	....	....	1	1	....	....	....	1	....	10	....	....
	Total	10	7	3	1	1	3	3	3	1	....	....	1	....	33	....	1
" 9 to 16.....	M ..	1	2	1	....	1	1	3	3	1	....	....	....	....	13	....	
	F ..	4	....	....	1	3	3	1	....	....	....	....	....	....	12	....	
	Total	5	2	1	1	4	4	4	3	1	....	....	....	....	25	....	
" 17 to 24.....	M ..	4	3	2	....	3	2	2	2	3	....	....	....	....	21	....	..
	F ..	3	3	1	....	....	1	1	....	1	1	2	....	2	15		
	Total	7	6	3	....	3	3	3	2	4	1	2	....	2	36		
" 25 to 31.. ...	M ..	3	4	....	1	2	1	1	....	2	....	....	....	....	14	..	
	F ..	1	1	..	2	2	....	1	1	1	2	....	....	....	11		
	Total	4	5	....	3	4	1	2	1	3	2	....	....	....	25	....	....

who died in the City of Toronto during the year 1876.—*Continued.*

Miasmatic.																				Enthetic.			
Scarlatina.	Diptheria.	Quinsy.	Whooping Cough.	Infantile Fever.	Erysipelas.	Metria (or Puerperal Fever).	Influenza.	Dysentery.	Diarrhœa	Cholera Infantum.	Cholera.	Ague.	Remittent Fever.	Typhoid Fever.	Rheumatism.	Fever.	Scarlet Fever.	Croup.	Total Miasmatic.	Stricture of Urethra.	Hydrophobia.	Syphilis.	Total Enthetic.
....	....	....	....	....	....	...	....	1	1	6	1	....	....	1	..	..	..	..	10	....	....	....	....
....	....	....	....	....	....	....	....	....	2	....	....	....	....	2	..	..	..	..	4	....	....	....	....
....	....	....	....	....	....	....	....	1	3	6	1	....	....	3	..	..	..	..	14	....	....	....	....
....	....	....	....	...	....	....	....	....	1	3	....	....	....	..	..	..	..	..	4	....	....	....	....
....	....	....	2	....	....	....	....	2	3	4	....	....	....	..	..	..	..	..	11	....	....	....	....
....	....	....	2	....	....	....	....	2	4	7	....	....	....	..	..	..	..	..	15	....	....	....	....
....	....	....	....	....	....	....	....	2	5	4	....	....	....	..	..	..	..	..	12	....	....	....	....
....	....	1	1	....	....	....	....	....	4	....	.....	....	....	2	..	..	..	..	8	....	....	....	....
....	....	1	1	....	....	....	....	2	9	4	....	....	....	2	..	..	..	..	20	....	....	...	....
....	....	....	....	....	....	....	....	....	6	1	....	....	....	1	..	..	..	..	8	....	....	....	....
....	1	....	1	....	....	....	....	....	1	1	....	....	....	..	..	..	..	..	4	....	....	....	....
....	1	....	1	....	....	....	....	....	7	2	....	....	....	1	..	..	..	..	12	....	....	....	....
1	....	....	1	....	1	....	....	....	2	1	....	....	....	1	1	..	..	..	8	....	....	....	....
1	....	....	....	....	....	....	....	....	3	1	....	....	....	4	..	..	..	1	10	....	....	....	....
2	....	....	1	....	1	....	....	....	5	2	....	....	....	5	1	..	..	1	18	....	....	....	....
....	1	....	.....	....	....	....	....	....	....	....	....	....	.....	..	..	..	..	..	1	....	....	....	....
1	....	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	..	..	1	....	....	....	....
1	1	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	..	..	2	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	..	..	3	..	6	....	....	....	....
....	1	....	....	....	2	....	....	....	....	....	....	....	....	..	..	..	2	..	5	....	....	....	....
....	1	....	....	....	2	....	....	....	....	....	....	....	....	2	..	..	5	..	11	....	....	....	....
....	....	....	....	....	1	....	....	....	....	....	....	....	....	1	..	..	1	..	3	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	1	..	1	....	....	....	....
....	....	....	....	....	1	....	....	....	....	....	....	....	....	1	..	..	2	..	4	....	....	....	....
....	1	....	.....	....	2	....	....	1	....	....	....	....	....	..	..	..	2	..	6	....	....	....	....
....	....	....	.....	....	....	....	....	....	....	1	....	....	....	..	..	..	..	..	1	....	....	....	....
....	1	....	....	....	2	....	....	1	....	1	....	....	....	..	..	..	2	..	7	....	....	....	....
.....	....	....	....	....	....	....	....	.....	....	....	....	....	....	1	2	..	3	..	6	....	....	....	....
....	....	....	....	....	....	1	....	....	....	....	....	....	....	..	..	..	1	..	2	....	....	....	....
....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	2	..	4	..	8	....	....	....	....

TABLE M.—Showing the Ages and Causes of Death of the Persons

MONTHS.	Sex.	AGE. Under 1 year.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 and upwards.	Not given.	Total.	Small Pox.	Measles.
November 1 to 8....	M	3	3	....	....	....	1	....	....	2	2	....	....	....	11	....	1
	F	1	4	....	....	....	1	....	....	2	....	....	....	....	8	....	....
	Total	4	7	....	....	....	2	....	....	4	2	....	....	....	19	....	1
" 9 to 16....	M	4	2	2	....	1	3	3	2	....	1	1	....	1	20	....	1
	F	....	6	2	....	1	....	5	1	....	2	....	....	....	17	....	....
	Total	4	8	4	....	2	3	8	3	....	3	1	....	1	37	....	1
" 17 to 24....	M	1	6	1	2	2	..	1	4	1	....	....	....	....	18	....	....
	F	2	2	2	1	2	1	3	....	1	1	1	....	....	16	....	....
	Total	3	8	3	3	4	1	4	4	2	1	1	....	....	34	....	....
" 25 to 30....	M	3	2	3	....	1	2	2	2	....	....	2	....	....	17	....	....
	F	3	5	....	2	....	2	....	....	....	1	....	....	....	13	....	....
	Total	6	7	3	2	1	4	2	2	....	1	2	....	..	30	....	....
December 1 to 8	M	4	2	1	1	4	....	....	1	....	....	1	1	....	15	....	....
	F	3	3	1	....	2	3	....	1	....	1	....	....	....	14	....	....
	Total	7	5	2	1	6	3	....	2	....	1	1	1	....	29	....	....
" 9 to 16	M	2	2	1	....	....	....	....	1	....	1	1	1	....	9	....	....
	F	3	2	1	1	1	1	3	....	....	1	....	....	....	13	....	....
	Total	5	4	2	1	1	1	3	1	....	2	1	1	....	22	....	....
" 17 to 24	M	6	....	1	....	1	....	2	....	2	1	....	....	....	13	....	....
	F	6	4	2	....	2	....	1	3	1	....	1	....	....	20	....	1
	Total	12	4	3	....	3	....	3	3	3	1	1	....	....	33	....	1
" 25 to 31	M	2	2	....	....	....	1	2	....	2	2	....	....	1	12	....	....
	F	2	2	....	....	1	1	2	....	....	....	....	....	....	8	....	....
	Total	4	4	....	....	1	2	4	....	2	2	....	....	1	20	....	....

who died in the City of Toronto during the year 1876.—*Concluded.*

Miasmatic.																				Enthetic.			
Scarletina.	Diphtheria.	Quinsy.	Whooping Cough.	Infantile Fever.	Erysipelas.	Metria (or Puerperal Fever).	Influenza.	Dysentery.	Diarrhœa.	Cholera Infantum.	Cholera.	Ague.	Remittent Fever.	Typhoid Fever.	Rheumatism.	Fever.	Scarlet Fever.	Croup.	Total Miasmatic.	Stricture of Uretha.	Hydrophobia.	Syphilis.	Total Enthetic.
....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	..	..	1	..	4	....	....	....	....
....	....	....	....	....	....	1	....	....	....	....	....	....	....	..	..	..	1	..	2	....	....	....	....
....	....	....	....	....	....	1	....	....	1	....	....	....	....	1	..	..	2	..	6	....	....	....	....
1	....	....	....	....	....	....	....	....	1	....	....	....	....	..	..	..	..	..	3	....	....	....	....
1	1	....	....	....	....	....	....	....	....	....	....	....	....	1	..	..	2	..	5	....	....	....	....
2	1	....	....	....	....	....	....	....	1	....	....	....	....	1	..	..	2	..	8	....	....	....	....
....	1	....	....	....	....	....	....	....	....	....	....	....	....	1	..	..	2	..	4	....	....	.	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	..	1	1	....	....	....	..
....	1	....	....	....	....	....	....	....	....	....	....	....	....	1	..	..	2	1	5	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	1	..	2	..	3	....	....	....	....
....	....	....	....	....	....	....	....	....	1	....	....	....	....	..	..	..	1	..	2	....	....	....	....
....	....	....	....	....	....	....	....	....	1	....	....	....	....	..	1	..	3	..	5	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	1	..	1	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	2	..	2	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	3	..	3	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	..	..	2	..	3	....	....	....	....
2	1	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	..	..	3	....	....	....	....
2	1	....	....	....	....	....	....	....	....	....	....	....	....	1	..	..	2	..	6	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	..	1	1	..	2	....	....	....	....
....	1	....	....	....	....	....	....	....	1	....	....	....	....	..	..	..	2	..	5	....	....	....	....
..	1	....	....	....	....	....	....	....	1	....	....	....	....	..	..	1	3	..	7	....	....	....	....
1	....	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	..	..	1	....	....	....	....
1	1	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	1	..	3	....	....	....	....
2	1	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	1	..	4	....	....	....	....

TABLE M.—Showing the Ages and Causes of Death of the Persons

MONTHS.	Sex.	Dietic.					Parasitic.			Diathetic.						
		Privation.	Purpura and Scurvy.	Delirium Tremens.	Intemperance.	Total Dietic.	Thrush.	Worms.	Total Parasitic.	Dropsy and Anæmia.	Cancer.	Noma (Canker).	Abscess.	Mortification.	Hemorrhage.	Total Diathetic.
January 1 to 8	M															
	F														1	1
	Total														1	1
" 9 to 16	M															
	F									1						1
	Total									1						1
" 17 to 24	M															
	F															
	Total															
" 25 to 31	M															
	F															
	Total															
Febrnary 1 to 7	M															
	F															
	Total															
" 8 to 14	M													1		1
	F										1					1
	Total										1			1		2
" 15 to 21	M															
	F									1			1			2
	Total									1			1			2
" 22 to 28	M									1						1
	F										1					1
	Total									1	1					2
March 1 to 8	M									2						2
	F										1		1			2
	Total									2	1		1			4
" 9 to 16	M									1						1
	F														1	1
	Total									1					1	2

who died in the City of Toronto during the year 187.—*Continued.*

Tubercular.					Nervous System.														Organs of Circulation.			
Scrofula.	Tabes Mesenterica.	Phthisis.	Hydrocephalus.	Total Tubercular.	Cephalitis.	Cerebro Spinal Meningitis.	Apoplexy.	Paralysis.	Insanity.	Concussion of Brain.	Chorea	Epilepsy.	Tetanus.	Convulsions.	Brain Disease.	Spinal Disease.	Meningitis.	Congestion of Brain.	Total Nervous System.	Pericarditis.	Aneurism.	Heart Disease.	Total Organs of Circulation.
....	....	....	....	....	....	....	....	1	1	....	....	2	....	—	..	..	2	..	6	....	....	1	1
....	....	2	....	2	....	....	....	1	....	....	....	....	....	..	..	..	..	..	1	....	....	....	....
....	....	2	....	2	....	....	....	2	1	....	....	2	....	..	..	..	2	..	7	....	....	1	1
....	....	....	1	1	....	....	....	....	2	2	....	....	....	..	..	..	..	..	4	....	....	....	....
....	....	2	....	2	....	....	....	1	....	....	....	....	....	..	..	..	..	2	3	....	....	....	....
....	....	2	1	3	....	....	....	1	2	2	....	....	....	..	..	..	..	2	7	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	..	..	....	....	....	....	....
....	....	1	....	1	....	....	1	....	1	....	....	....	....	..	..	1	..	..	3	....	....	....	....
....	....	1	....	1	....	....	1	....	1	....	....	....	....	..	..	1	..	..	3	....	....	....	....
1	....	2	....	3	....	....	....	....	....	....	....	....	....	2	..	..	..	..	2	....	....	1	1
....	....	4	....	4	....	....	1	....	....	....	....	....	....	1	..	..	..	..	2	....	....	....	....
1	....	6	....	7	....	....	1	....	....	....	....	....	....	3	..	..	..	..	4	....	....	1	1
....	....	2	....	2	....	....	....	....	....	....	....	....	....	..	..	..	..	..	....	....	2	....	2
....	....	....	2	2	....	....	....	....	....	....	....	....	....	2	1	..	..	1	4	....	....	....	....
....	....	2	2	4	....	....	....	....	....	....	....	....	....	2	1	..	..	1	4	....	2	....	2
....	....	2	....	2	....	....	....	....	....	1	....	....	....	..	..	..	..	..	1	....	....	....	....
....	....	3	....	3	....	....	....	....	....	....	....	....	....	1	..	..	..	..	1	....	....	1	1
....	....	5	....	5	....	....	....	....	....	1	....	....	....	1	..	..	..	..	2	....	....	1	1
....	....	3	....	3	....	1	....	....	....	....	....	....	....	..	..	..	..	..	1	....	1	1	2
....	....	2	1	3	....	....	2	....	....	1	....	....	....	1	..	..	..	..	4	....	....	....	....
....	....	7	1	8	....	1	2	....	....	1	....	....	....	1	..	..	..	..	5	....	....	....	....
....	....	3	....	3	....	....	2	1	....	....	....	1	..	..	..	..	..	..	4	....	....	1	1
....	....	2	....	2	....	....	....	....	....	....	....	....	....	..	..	..	..	..	....	....	....	1	1
....	....	5	....	5	....	....	2	1	....	....	....	1	....	..	..	..	..	..	4	....	....	2	2
....	....	4	....	4	....	....	1	....	....	....	....	....	....	..	..	..	..	..	1	....	....	1	1
....	....	5	....	5	....	....	....	....	....	....	....	....	....	..	..	..	1	..	1	....	....	....	....
....	....	9	....	9	....	....	1	....	....	....	....	....	....	..	..	..	1	..	2	....	....	1	1
....	....	1	2	3	....	....	....	....	....	....	....	....	....	..	..	..	..	..	....	....	....	....	....
....	....	4	....	4	....	....	....	....	....	....	....	....	....	..	..	..	..	..	....	....	....	1	1
....	....	5	2	7	....	....	....	....	....	....	....	....	....	..	..	..	..	..	....	....	....	1	1

TABLE M.—Showing the Ages and Causes of Death of the Persons

MONTHS.	Sex.	DIETIC. Privation.	Purpura and Scurvy.	Delirium Tremens.	Intemperance.	Total Dietic.	PARASITIC. Thrush.	Worms.	Total Parasitic.	DIATHETIC. Dropsy and Anæmia.	Cancer.	Noma (Canker).	Abscess.	Mortification.	Hemorrhage.	Total Diathetic.
March 17 to 24	M									1			1			
	F									2			1			
	Total									3			2			5
" 25 to 31	M									1	2					3
	F															
	Total									1	2					3
April 1 to 8	M										1			1	1	2
	F															1
	Total										1		1	1		3
" 9 to 16	M															
	F															
	Total															
" 17 to 24	M									1						1
	F				1	1										1
	Total				1	1				1						1
" 25 to 30	M															
	F															
	Total															
May 1 to 8	M						1		1					1		1
	F															
	Total						1		1					1		1
" 9 to 16	M									1			1		1	3
	F															
	Total									1			1		1	3
" 17 to 24	M						1		1	2		1		1		4
	F															
	Total									1	2	1		1		4
" 25 to 31	M						1		1							
	F															
	Total						1		1							

who died in the City of Toronto during the year 1876.—*Continued.*

Tubercular.					Nervous System.														Organs of Circulation.			
Scrofula.	Tabes Mesenterica.	Phthisis.	Hydrocephalus.	Total Tubercular.	Cephalitis.	Cerebro-Spinal Meningitis.	Apoplexy.	Paralysis.	Insanity.	Concussion of Brain.	Chorea.	Epilepsy.	Tetanus.	Convulsions.	Brain Disease.	Spinal Disease.	Meningitis.	Congestion of Brain.	Total Nervous System.	Pericarditis.	Aneurism.	Heart Disease.	Total Organs of Circulation.
		1		1						1								1	2			1	1
			1	1						1				1					2				
		1	1	2						3				4				1	8			1	1
		1		1			1	1	1	1				2			1		4			1	1
		2		2			1			2				1	1		1		6			1	1
		3		3			2	1	1	3				3	1		2		13			2	2
		5		5										1					1				
		5		5				1	2										3			1	1
		10		10				1	2					1					4			1	1
		3		3				2											2				
		2	1	3																			
		5	1	6				2											2				
		5		5			1	1				1		1			1		3			1	1
		7		7			1	2				1		3			1		8			1	1
		2	3	5				3											3				
								1						2					3				
		2	3	5				4						2					6				
		3		3			1												1				
		3		3				1									2	1	4				
		6		6			1	1									2	1	5				
	1	1		2				1				1		1			2		5				
		2		2																			
	1	3		4				1				1		1			2		5				
			1	1	1				1			1							3			2	
		2	1	3			1							1			1		3			1	
		2	2	4	1		1		1			1		1			1		6			3	3
							1							1					2				
		1		1						1				2			1		4			1	
		1		1			1				1			3			1		6			1	1

TABLE M.—Showing the Ages and Causes of Death of the persons

MONTHS.	Sex.	Dietic.					Parasitic.			Diathetic.						
		Privation.	Purpura and Scurvy.	Delirium Tremens.	Intemperance.	Total Dietic.	Thrush.	Worms.	Total Parasitic.	Dropsy and Anæmia.	Cancer.	Noma (Canker).	Abscess.	Mortification.	Hemorrhage.	Total Diathetic.
June 1 to 8	M															
	F															
	Total															
" 9 to 16	M										2					2
	F										1					1
	Total										3					3
" 17 to 24	M															
	F				1	1										
	Total				1	1										
" 25 to 30	M															
	F									1			1			2
	Total									1			1			2
July 1 to 8	M				1	1	1	1	2							
	F															
	Total				1	1	1	1	2							
" 9 to 16	M										1					1
	F						1		1						2	2
	Total						1		1		1				2	3
" 17 to 24	M										1					1
	F						1		1		1					1
	Total						1		1		2					2
" 25 to 31	M									1						1
	F									1						1
	Total									2						2
August 1 to 8	M										1		1			2
	F															
	Total										1		1			2
" 9 to 16	M			1		1							1			1
	F															
	Total			1		1							1			1

who died in the City of Toronto during the year 1876.—*Continued.*

Tubercular.					Nervous System.														Organs of Circulation.			
Scrofula.	Tabes Mesenterica.	Phthisis.	Hydrocephalus.	Total Tubercular.	Cephalitis.	Cerebro-Spinal Meningitis.	Apoplexy.	Paralysis.	Insanity.	Concussion of Brain.	Chorea.	Epilepsy.	Tetanus.	Convulsions.	Brain Disease.	Spinal Disease.	Meningitis.	Congestion of Brain.	Total Nervous System.	Pericarditis.	Aneurism.	Heart Disease.	Total Organs of Circulation.
....	....	3	....	3	....	....	....	1	....	....	....	....	....	..	..	..	..	1	2	....	....	1	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	..	..	....	....	....	....	....
....	....	3	....	3	....	....	....	1	....	....	....	....	....	..	..	..	..	1	2	....	....	1	1
....	....	1	....	1	....	....	....	....	....	....	....	....	....	1	..	..	..	..	1	....	....	1	1
....	....	2	....	2	....	....	1	....	....	....	....	....	....	..	..	..	..	..	1	....	....	1	1
....	....	3	....	3	....	....	1	....	....	....	....	....	....	1	..	..	..	..	2	....	....	2	2
....	....	1	....	1	....	1	3	....	....	....	....	....	....	..	..	..	..	..	4	....	....	2	2
....	....	1	....	1	....	....	....	....	....	....	....	....	....	..	..	..	..	1	1	....	....	....	....
....	....	2	....	2	....	1	3	....	....	....	....	....	....	..	..	..	..	1	5	....	....	2	2
....	....	3	....	3	....	1	....	....	....	....	....	....	....	..	..	..	..	1	2	....	....	1	1
....	....	1	....	1	....	....	....	....	....	....	....	....	....	..	..	..	1	1	2	....	....	....	....
....	....	4	....	4	....	1	....	....	....	....	....	....	....	..	..	..	1	2	4	....	....	1	1
....	1	3	2	6	....	....	1	....	....	....	....	....	....	2	..	..	..	..	3	....	....	....	....
....	1	1	1	3	....	....	....	1	....	....	....	....	....	3	..	..	..	1	5	....	....	....	....
....	2	4	3	9	....	....	1	1	....	....	....	....	....	5	..	..	..	1	8	....	....	....	....
....	....	2	....	2	....	....	....	....	....	....	....	....	....	1	..	..	..	..	1	....	....	....	....
....	1	2	....	3	....	....	....	....	....	....	....	....	....	2	..	..	..	..	2	....	....	....	....
....	1	4	....	5	....	....	....	....	....	....	....	....	....	3	..	..	..	..	3	....	....	....	....
....	....	4	....	4	....	....	....	1	....	....	....	....	....	2	1	..	..	2	6	....	....	....	....
....	....	3	1	4	....	....	....	....	....	....	....	....	....	1	..	..	..	..	1	....	....	....	....
....	....	7	1	8	....	....	....	1	....	....	....	....	....	3	1	..	..	2	7	....	....	....	....
....	....	3	1	4	....	1	....	....	....	....	....	1	....	..	..	..	..	..	2	....	....	1	1
....	....	....	....	....	....	....	1	....	....	1	....	....	....	1	..	..	..	1	4	....	....	....	....
....	....	3	1	4	....	1	1	....	....	1	....	1	....	1	..	..	..	1	6	....	....	1	1
....	....	2	....	2	....	....	....	1	....	....	....	....	....	..	..	..	..	..	1	....	....	....	....
....	....	3	1	4	....	....	1	....	....	....	....	....	....	1	..	..	..	..	2	....	....	....	....
....	....	5	1	6	....	....	1	1	....	....	....	....	....	1	..	..	..	..	3	....	....	....	....
....	....	2	1	3	....	1	....	....	1	..	....	1	....	..	2	..	..	1	6	....	....	1	1
....	....	4	....	4	....	....	1	....	....	....	....	....	....	..	1	..	1	..	3	....	....	1	1
....	....	6	1	7	....	1	1	....	1	....	....	1	....	..	3	..	1	1	9	....	....	2	2

TABLE M.—Showing the Ages and Causes of Death of the persons

MONTHS.	Sex.	Dietic.					Parasitic.			Diathetic.						
		Privation.	Purpura and Scurvy.	Delirium Tremens.	Intemperance.	Total Dietic.	Thrush.	Worms.	Total Parasitic.	Dropsy and Anæmia.	Cancer.	Noma (Canker).	Abscess.	Mortification.	Hemorrhage.	Total Diathetic.
August 17 to 24.....	M	..	..	..	..	..	..	..	..	..	2	..	..	..	..	2
	F	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	..	..	..	..	..	..	..	..	2	..	..	..	..	2
" 25 to 31..	M	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	F	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
	Total	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
September 1 to 8	M	..	..	..	..	..	..	..	..	2	..	..	..	..	..	2
	F	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..
	Total	..	..	..	..	..	1	..	1	2	..	..	..	..	..	2
" 9 to 16.	M	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	F	..	..	..	..	..	1	..	1	..	1	..	..	..	..	1
	Total	..	..	..	..	..	1	..	1	..	1	..	..	..	..	1
" 17 to 24.	M	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	F	..	..	..	..	..	..	..	..	1	1	..	..	..	..	2
	Total	..	..	..	..	..	..	..	..	1	1	..	..	..	..	2
" 25 to 30.	M	..	..	1	1	2	..	..	..	1	..	..	..	..	..	1
	F	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1
	Total	..	..	1	1	2	..	..	..	1	1	..	..	..	..	2
October 1 to 8	M	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	F	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
" 9 to 16	M	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
	F	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
" 17 to 24	M	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
	F	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
25 to 31	M	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	F	..	..	..	..	..	..	..	..	2	..	..	..	..	..	2
	Total	..	..	..	..	..	..	..	..	2	..	..	..	..	..	2

who died in the City of Toronto during the year 1876.—*Continued.*

Tubercular.					Nervous System.														Organs of Circulation.			
Scrofula.	Tabes Mesenterica.	Phthisis.	Hydrocephalus.	Total Tubercular.	Cephalitis.	Cerebro-Spinal Meningitis.	Apoplexy.	Paralysis.	Insanity.	Concussion of Brain.	Chorea.	Epilepsy.	Tetanus.	Convulsions.	Brain Disease.	Spinal Disease.	Meningitis.	Congestion of Brain.	Total Nervous System.	Pericarditis.	Aneurism.	Heart Disease.	Total Organs of Circulation.
....	1	....	1	2	....	....	....	....	....	....	....	....	1	1	....	....	....	....	2	....	....	....	....
....	....	2	....	2	....	....	....	....	....	1	....	....	....	....	....	....	1	....	2	1	....	....	1
....	1	2	1	4	....	....	....	....	....	1	....	....	1	1	....	....	1	....	4	1	....	....	1
....	....	3	1	4	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....
....	....	4	....	4	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....	....	....
....	....	7	1	8	....	....	....	....	....	....	....	....	....	....	1	....	....	1	2	....	....	....	....
....	....	1	....	1	....	....	1	....	....	....	....	....	....	1	....	....	2	....	4	....	1	....	1
....	....	3	....	3	....	....	....	....	....	....	....	....	....	....	....	....	2	1	3	....	....	1	1
....	....	4	....	4	....	....	1	....	....	....	....	....	....	1	....	....	4	1	7	....	1	1	2
....	....	2	....	2	....	....	....	....	....	....	1	....	....	1	....	....	....	....	2	....	....	....	....
....	....	2	....	2	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....	1	1
....	....	4	....	4	....	....	....	....	....	....	1	....	....	1	....	....	1	....	3	....	....	1	1
....	1	2	....	3	1	....	....	1	....	....	....	....	....	2	....	....	....	2	6	....	....	....	....
....	....	2	....	2	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	....	....	....
....	1	4	....	5	1	....	....	1	....	....	....	....	....	3	....	....	....	2	7	....	....	....	....
....	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1
....	....	....	2	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	1	2	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1
1	....	1	....	2	....	....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	2
1	....	1	....	2	....	....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....	2	2
....	....	1	....	1	....	....	1	....	....	....	....	....	....	....	....	....	1	....	2	....	....	1	1
....	....	1	....	1	....	....	....	....	....	....	....	....	....	....	1	....	1	....	2	....	....	2	2
....	....	2	....	2	....	....	1	....	....	....	....	....	....	....	1	....	2	....	4	....	....	3	3
....	....	5	....	5	....	....	....	....	....	....	....	....	....	1	....	....	1	1	3	....	....	....	....
1	....	1	....	2	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	....	....	....
1	....	6	....	7	....	....	....	....	....	....	....	....	....	2	....	....	1	1	4	....	....	....	....
....	....	2	....	2	....	....	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....
....	....	2	1	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	4	1	5	....	....	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....

TABLE M.—Showing the Ages and Causes of Death of the Persons

MONTHS.	Sex.	Dietic.					Parasitic.			Diathetic.						
		Privation.	Purpura and Scurvy.	Delirium Tremens.	Intemperance.	Total Dietic.	Thrush.	Worms.	Total Parasitic.	Dropsy and Anæmia.	Cancer.	Noma (Canker).	Abscess.	Mortification.	Hemorrhage.	Total Diathetic.
November 1 to 8	M									1						1
	F														1	1
	Total									1					1	2
" 9 to 16	M															
	F									1						1
	Total									1						1
" 17 to 24	M															
	F										1					1
	Total										1					1
" 25 to 30	M															
	F									1						1
	Total									1						1
December 1 to 8	M										1					1
	F				1	1							1		1	2
	Total				1	1					1		1		1	3
" 9 to 16	M															
	F									1	1					2
	Total									1	1					2
" 17 to 24	M									2						2
	F	1				1					1		1			2
	Total	1				1				2	1		1			4
" 25 to 31	M															
	F															
	Total															

who died in the City of Toronto during the year 1876.—*Continued.*

Tubercular.					Nervous System.														Organs of Circulation.			
Scrofula.	Tabes Mesenterica.	Phthisis.	Hydrocephalus.	Total Tubercular.	Cephalitis.	Cerebro-Spinal Meningitis.	Apoplexy.	Paralysis.	Insanity.	Concussion of Brain.	Chorea.	Epilepsy.	Tetanus.	Convulsions.	Brain Disease.	Spinal Disease.	Meningitis.	Congestion of Brain.	Total Nervous System.	Pericarditis.	Aneurism.	Heart Disease.	Total Organs of Circulation.
....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	..	1	1	....	....	....	....
....	....	1	....	1	....	....	....	....	....	....	....	....	....	..	..	..	..	..	..	....	....	....	....
....	....	1	....	1	....	....	....	....	....	....	....	....	....	..	..	..	..	1	1	....	....	....	....
....	....	4	....	4	....	....	1	1	....	....	....	....	....	2	..	..	1	1	6	....	....	1	1
....	....	3	....	3	....	....	1	....	....	....	....	....	....	..	..	..	..	..	1	....	....	2	2
....	....	7	....	7	....	....	2	1	....	....	....	....	....	2	..	..	1	1	7	....	....	3	3
....	....	4	....	4	....	....	....	....	....	....	....	....	....	..	..	..	..	..	..	....	....	....	....
1	....	3	....	4	....	....	....	1	1	....	....	....	....	1	..	..	..	..	3	....	....	....	....
1	....	7	....	8	....	....	....	1	1	....	....	....	....	1	..	..	..	..	3	....	....	....	....
....	....	2	....	2	....	....	....	....	....	....	....	....	....	..	..	..	1	..	1	....	....	1	1
2	....	1	....	3	....	....	....	....	....	....	....	....	....	..	..	..	1	..	1	....	....	1	1
2	....	3	....	5	....	....	....	....	....	....	....	....	....	..	..	..	2	..	2	....	....	2	2
....	....	2	....	2	....	....	1	....	....	....	....	1	....	1	..	..	..	..	3	....	....	....	....
....	....	2	....	2	....	....	....	....	....	....	....	....	....	1	..	..	1	..	2	....	....	1	1
....	....	4	....	4	....	....	1	....	....	....	....	1	....	2	..	..	1	..	5	....	....	1	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	2	..	..	..	2	....	....	....	....
....	....	1	....	1	....	....	....	....	....	....	....	....	....	1	..	..	..	1	2	....	....	....	....
....	....	1	....	1	....	....	....	....	....	....	....	....	....	1	2	..	..	1	4	....	....	....	....
....	....	....	....	....	....	....	....	....	1	....	....	....	....	..	..	..	..	..	1	....	....	....	....
....	....	1	1	2	....	....	....	....	....	....	....	....	....	1	..	..	..	..	1	....	....	....	....
....	....	1	1	2	....	....	....	....	1	....	....	....	....	1	..	..	..	..	2	....	....	....	....
....	....	2	....	2	....	....	2	1	....	....	....	....	....	..	..	..	..	..	3	....	....	1	1
....	....	1	....	1	....	....	....	....	....	....	....	....	....	..	..	..	..	..	....	....	....	....	....
....	....	3	....	3	....	....	2	1	....	....	....	....	....	..	..	..	..	..	3	....	....	1	1

TABLE M.—Showing the Ages and Causes of Death of the Persons

MONTHS.	Sex.	Respiratory Organs.								Digestive							
		Laryngitis.	Bronchitis.	Pleurisy.	Pneumonia.	Asthma.	Lung Disease.	Congestion of Lungs.	Total Respiratory Organs.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.
January 1 to 8	M				1		1		2								
	F				2			1	3								
	Total				3		1	1	5								
" 9 to 16	M		1		1	1			3		1						
	F																
	Total		1		1	1			3		1						
" 17 to 24	M				1		1		2								
	F				2			1	3								
	Total				3		1	1	5								
" 25 to 31	M				1			1	2								
	F																
	Total				1			1	2								
February 1 to 7	M		1		2				3								
	F		1			1			2								
	Total		2		2	1			5								
" 8 to 14	M				2				2		1						
	F		1		3				4								
	Total		1		5				6		1						
" 15 to 21	M		1		1				2								
	F																
	Total		1		1				2								
" 22 to 28	M		1		1			1	3								
	F				1			2	3			1					
	Total		1		2			3	6			1					
March 1 to 8	M		1		1				2						1		
	F		2		1				3							1	
	Total		3		2				5						1	1	
" 9 to 16	M				1			2	3								
	F		1					1	2								
	Total		1		1			3	5								

who died in the City of Toronto during the year 1876.—*Continued.*

Organs.									Urinary Organs.						Generative Organs.			Organs of Locomotion.		
Stricture of Intestines.	Fistula.	Stomach Disease.	Hepatitis.	Jaundice.	Liver Disease.	Spleen Disease.	Exhaustion.	Total Digestive Organs.	Nephritis.	Nephria (Bright's Disease.)	Diabetes.	Calculus (Stone, Gravel, &c.)	Cystitis.	Kidney Disease.	Total Urinary Organs.	Ovarian Dropsy.	Disease of Uteris.	Total Generative Organs.	Joint Disease.	Arthritis.	Total Organs of Locomotion.
....	....	....	....	....	1	....	1	2	....	1	....	....	....	....	1	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....	....	....	....	....
....	....	....	....	....	1	....	1	2	....	1	1	....	....	....	2	....	....	....	....	....	....
....	....	....	....	....	....	....	1	2	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	1	....	1	3	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	1	1	....	....	....	....	....	1	1	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	1	1	....	....	....	....	....	1	1	....	....	....	....	....	....
....	....	1	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	1	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
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....	....	....	....	....	1	....	1	3	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	1	....	1	3	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	1	1	....	2	....	....	....	....	2	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	1	1	....	2	....	....	....	....	2	....	....	....	....	....	....
....	....	....	....	....	2	....	1	3	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	2	....	1	4	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	1	....	1	....	....	....	....	1	....	....	....	....	....	....
....	....	....	....	....	....	....	....	2	....	1	....	....	....	....	1	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	....	....	....	....	....	....
....	....	....	....	....	....	....	1	1	....	....	1	....	....	....	1	....	....	....	....	....	....
....	....	....	....	....	....	....	1	1	1	....	1	....	....	....	2	....	....	....	....	....	....

TABLE M.—Showing the Ages and Causes of Death of the Persons

MONTHS,	Sex.	Respiratory Organs.								Digestive							
		Laryngitis.	Bronchitis.	Pleurisy.	Pneumonia.	Asthma.	Lung Disease.	Congestion of Lungs.	Total Respiratory Organs.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.
March 17 to 24	M		1		2				3								
	F																
	Total		1		2				3								
" 25 to 31	M							1	1	1							
	F				3				3								
	Total				3			1	4	1							
April 1 to 8	M																
	F		3		4				7								
	Total		3		4				7								
" 9 to 16	M				1				1		1						
	F																
	Total				1				1		1						
" 17 to 24	M		1		2			1	4		2						
	F	1	1		1	1			3								
	Total	1	2		3	1		1	7		2						
" 25 to 30	M		1		2			1	4		1				1		
	F				3	1		1	5								
	Total		1		5	1		2	9		1				1		
May 1 to 8	M				3				3		5			1			
	F	1	1		3				5	1							
	Total	1	1		6				8	1	5			1			
" 9 to 16	M		2			1			3		1						
	F		1		4			1	6		1						
	Total		3		4	1		1	9		2						
" 17 to 24	M		1		3				4								
	F				2			1	3								
	Total		1		5			1	7								
" 25 to 31	M		1		1				2								
	F						1		1		1						
	Total		1		1		1		3		1						

who died in the City of Toronto during the pear 1876.—*Continued.*

Organs.									Urinary Organs.							Generative Organs.			Organs of Locomotion.		
Stricture of Intestines.	Fistula.	Stomach Disease.	Hepatitis.	Jaundice.	Liver Disease.	Spleen Disease.	Exhaustion.	Total Digestive Organs.	Nephritis.	Nephria (Bright's Disease.)	Diabetes.	Calculus (Stone, Gravel, &c.)	Cystitis.	Kidney Disease.	Total Urinary Organs.	Ovarian Dropsy.	Disease of Uteris.	Total Generative Organs.	Joint Disease.	Arthritis.	Total Organs of Locomotion.
....	....	....	....	....	....	....	1	1	....	....	....	....	....	1	1	....	....	....	1	....	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	1	1	....	....	....	....	....	1	1	....	....	....	1	....	1
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....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	1	....	....	....	1	....	1	....	....	....	1	....	....	....	....	....	....	....
....	....	....	....	1	....	....	....	2	....	1	....	....	....	1	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	2	....	....	....	....	....	1	1	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	2	....	....	....	....	....	1	1	....	....	....	....	....	....
....	....	....	....	....	....	....	1	3	....	....	....	....	....	1	1	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	1	3	....	....	....	....	....	1	1	....	....	....	....	....	....
....	....	....	....	....	....	....	....	6	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	1	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	1	....	....	....	....	....	8	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....	....	....	....	....
....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	1	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	1	....	1	3	....	....	....	....	....	....	....	....	....	....	....	....	....

TABLE M.—Showing the Age and Causes of Death of the Persons

MONTHS.	Sex.	Respiratory Organs.								Digestive							
		Laryngitis.	Bronchitis.	Pleurisy.	Pneumonia.	Asthma.	Lung Disease.	Congestion of Lungs.	Total Respiratory Organs.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intus-susception.
June 1 to 8	M		4		1				5								
	F		1	1	1				4		1	1					
	Total		5	1	2			1	9		1	1					
" 9 to 16	M		2					1	3								
	F				2				2						1		
	Total		2		2			1	5						1		
" 17 to 24	M		1		1				2								
	F		1						1								
	Total		2		1				3								
" 25 to 30	M				2				2								
	F																
	Total				2				2								
July 1 to 8	M		1						1		1						
	F																
	Total		1						1		1						
" 9 to 16	M		1		2				3		1						
	F		1		1				2								
	Total		2		3				5		1						
" 17 to 24	M																
	F				1	2			3		1						
	Total				1	2			3		1						
" 25 to 31	M		1					1	2		1						
	F		1					2	3								
	Total		2					3	5		1						
August 1 to 8	M				1				1								
	F				1				1								
	Total				2				2								
" 9 to 16	M		3						3								
	F				1				1	1	1						
	Total		3		1				4	1	1						

who died in the City of Toronto during the year 1876.—*Continued.*

Organs.									Urinary Organs.						Generative Organs.			Organs of Locomotion.		
Stricture of Intestines.	Fistula.	Stomach Disease.	Hepatitis.	Jaundice.	Liver Disease.	Spleen Disease.	Exhaustion.	Total Digestive Organs.	Nephritis.	Nephria (Bright's Disease).	Diabetes.	Calculus (Stone, Gravel, &c.)	Cystitis.	Kidney Disease.	Total Urinary Organs.	Ovarian Dropsy.	Disease of Uteris.	Total Generative Organs.	Joint Disease.	Arthritis.	Total Organs of Locomotion.
							1	1				1			1						
								2													
							1	3				1			1						
								1													
								1													
														1	2						
								1		1				1	2						
							1	2													
							1	2													
							1	1													
								1													
							1	2													
					1			2		1					1		1	1			
					1			2		1					1		1	1			
					1			1													
					1			1													
		1						1													
								2													
		1						3													

TABLE M.—Showing the Age and Causes of Death of the Persons

MONTHS.	Sex.	Respiratory Organs.								Digestive							
		Laryngitis.	Bronchitis.	Pleurisy.	Pneumonia.	Asthma.	Lung Disease.	Congestion of Lungs.	Total Respiratory Organs.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.
August 17 to 24	M																
	F		2						2		2						
	Total		2						2		2						
" 25 to 31	M																
	F										1	1					
	Total										1	1					
September 1 to 8	M		1		2		1		4								
	F				2				2								
	Total		1		4		1		6								
" 9 to 16	M																1
	F										1				1		
	Total										1				1		1
" 17 to 24	M			1					1								
	F																
	Total			1					1								
" 25 to 30	M																
	F																
	Total																
October 1 to 8	M	2			2				4		1	1					
	F																
	Total	2			2				4		1	1					
" 9 to 16	M				1				1		1						
	F									1							
	Total				1				1	1	1						
" 17 to 24	M		1		2				3			1					
	F		1		2				3								
	Total		2		4				6			1					
" 25 to 31	M				1				1								
	F				1				1			1					
	Total				2				2			1					

who died n the City of Toronto during the year 1876.—*Continued.*

Organs.									Urinary Organs.							Generative Organs.			Organs of Locomotion.		
Stricture of Intestines	Fistula.	Stomach Disease.	Hepatitis.	Jaundice.	Liver Disease.	Spleen Disease.	Exhaustion.	Total Digestive Organs.	Nephritis.	Nephria (Bright's Disease).	Diabetes.	Calculus (Stone, Gravel, &c.)	Cystitis.	Kidney Disease.	Total Urinary Organs.	Ovarian Dropsy.	Disease of Uteris.	Total Generative Organs.	Joint Disease.	Arthritis.	Total Organs of Locomotion.
....	....	....	....	....	....	....	....	4	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	2	....	....	....	4	....	....	....	....	....	....	....	....	....	....	....	....	....
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....	....	....	....	....	1	....	....	3	....	....	....	....	....	....	....	....	....	....	....	....	....
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....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	1	....	....	....	....	....	....
....	....	....	....	....	....	....	....	2	....	....	....	....	....	1	1	....	....	....	....	....	....
....	....	....	....	....	....	....	1	2	....	1	....	....	....	....	1	....	....	....	....	....	....
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....	....	....	....	....	....	....	1	2	....	1	....	....	....	....	1	....	....	....	....	....	....
....	....	....	....	....	1	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	1	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....
9									129												

TABLE M.—Showing the Ages and Causes of Death of the Persons

MONTHS.	Sex.	Respiratory Organs.								Digestive							
		Laryngitis.	Bronchitis.	Pleurisy.	Pneumonia.	Asthma.	Lung Disease.	Congestion of Lungs.	Total Respiratory Organs.	Gastritis.	Enteritis.	Peritonitis.	Ascites.	Ulceration of Intestines.	Hernia.	Ileus.	Intussusception.
November 1 to 8	M				1				1								
	F				1				1								
	Total				2				2								
" 9 to 16	M				3				3			1					
	F				3				3								
	Total				6				6			1					
" 17 to 24	M		1		2	1			4			1					
	F				3	1			4								
	Total		1		5	2			8			1					
" 25 to 30	M				3		1		4								
	F				2				2								
	Total				5		1		6								
December 1 to 8	M		2		1				3								
	F				1				1		1						
	Total		2		2				4		1						
" 9 to 16	M		1		1				2								
	F				1	1			2		1						
	Total		1		2	1			4		1						
" 17 to 24	M		1		2				3								
	F		2		1	1			4		1	1					
	Total		3		3	1			7		1	1					
" 25 to 31	M		1			1			2		1						
	F				2	1			3								
	Total		1		2	2			5		1						

who died in the City of Toronto during the year 1876.—*Continued.*

Organs.									Urinary Organs.							Generative Organs.			Organs of Locomotion.		
Stricture of Intestines.	Fistula.	Stomach Disease.	Hepatitis.	Jaundice.	Liver Disease.	Spleen Disease.	Exhaustion.	Total Digestive Organs.	Nephritis.	Nephria (Bright's Disease).	Diabetes.	Calculus (Stone, Gravel, &c.)	Cystitis.	Kidney Disease.	Total Urinary Organs.	Ovarian Dropsy.	Disease of Uteris.	Total Generative Organs.	Joint Disease.	Arthritis.	Total Organs of Locomotion.
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
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....	....	....	1	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....
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....	....	....	....	....	....	....	....	1	....	1	1	....	....	....	2	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....
....	....	....	....	....	1	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....
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TABLE M.—Showing the Ages and Causes of Death of the Persons

MONTHS.	Sex.	Integumentary System.					Developmental Diseases of Children.								Developmental Diseases of Women.		
		Phlegmon.	Ulcer.	Skin Disease.	Tumour (part not stated).	Total Integumentary System.	Still Born.	Infantile, Premature, &c.	Cyanosis.	Spina Bifida.	Other Malformations.	Teething.	Infantile Debility or Marasmus.	Total Developmental Diseases of Children.	Paramenia.	Childbirth.	Total Developmental Diseases of Women.
January 1 to 8	M	....	....	....	....	....	....	....	....	....	....	....	3	3	....	....	....
	F	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	Total	....	....	....	....	....	....	....	....	....	....	....	3	3	....	....	....
" 9 to 16	M	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	F	....	....	....	....	....	1	....	....	....	....	....	1	2	....	....	....
	Total	....	....	....	....	....	1	....	....	....	....	....	1	2	....	....	....
" 17 to 24	M	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	F	....	....	....	....	....	....	....	....	....	....	1	....	1	....	1	1
	Total	....	....	....	....	....	....	....	....	....	....	1	....	1	....	1	1
" 25 to 31	M	....	....	....	....	....	1	1	....	....	....	....	....	2	....	....	....
	F	....	....	....	1	1	1	....	....	....	....	....	2	3	....	....	....
	Total	....	....	....	1	1	2	1	....	....	....	....	2	5	....	....	....
February 1 to 7	M	....	....	....	....	....	....	1	....	....	....	....	1	2	....	....	....
	F	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....	....
	Total	....	....	....	....	....	....	1	....	....	....	1	1	3	....	....	....
" 8 to 14	M	....	....	....	....	....	....	1	....	....	....	....	....	1	....	....	....
	F	....	....	....	....	....	....	1	....	....	....	1	....	2	....	....	....
	Total	....	....	....	....	....	....	2	....	....	....	1	....	3	....	....	....
" 15 to 21	M	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....
	F	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	Total	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....
" 22 to 28	M	....	....	....	....	....	....	1	....	....	....	....	1	2	....	....	....
	F	....	....	....	1	1	1	....	....	....	....	....	....	1	....	....	....
	Total	....	....	....	1	1	1	1	....	....	....	....	1	3	....	....	....
March 1 to 8	M	....	....	....	....	....	....	1	....	....	....	....	....	1	....	....	....
	F	....	....	....	....	....	....	1	....	....	....	....	1	2	....	....	....
	Total	....	....	....	....	....	....	2	....	....	....	....	1	3	....	....	....
" 9 to 16	M	....	....	....	....	....	1	1	....	....	....	....	....	2	....	....	....
	F	....	....	....	....	....	....	....	....	....	1	....	2	3	....	....	....
	Total	....	....	....	....	....	1	1	....	....	1	....	2	5	....	....	....

who died in the City of Toronto during the year 1876.—*Continued.*

Developmental Diseases of Old People.	Diseases of Nutrition.	Accident or Negligence.								Homicide (Murder).	Suicide.	Execution.	Violent Deaths (not classed).	Sudden (cause not known).	Cause not Specified.	Erroneously Specified.	Other Diseases.
Old Age.	Atrophy and Debility.	Fracture or Contusion.	Wounds.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Otherwise.	Killed by Cars.	Total Deaths from Accident or Negligence.							
1	2										1				1		
1																	1
2	2										1				1		1
1						1				1							
3																	
4						1				1							
	1		1							1							
1																	
1	1		1							1							
1																	
1																	
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1																	1
									1	1					1		
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1																	
1																	
						1				1		1					1
1																	
1						1				1		1					1
								2		2							
								2		2							

TABLE M.—Showing the Ages and Causes of Death of the Persons

MONTHS.	Sex.	Integumentary System.					Developmental Diseases of Children.								Developmental Diseases of Women.		
		Phlegmon.	Ulcer.	Skin Disease.	Tumour (part not stated).	Total Integumentary System.	Still Born.	Infantile, Premature, &c.	Cyanosis.	Spina Bifida.	Other Malformations.	Teething.	Infantile Debility or Marasmus.	Total Developmental Diseases of Children.	Paramenia.	Childbirth.	Total Developmental Diseases of Women.
March 17 to 24	M	....	....	....	....	....	4	1	....	....	....	....	....	5	....	....	....
	F	....	....	....	....	....	....	1	....	....	....	....	....	1	....	....	....
	Total	....	....	....	....	....	4	2	....	....	....	....	....	6	....	....	....
" 25 to 31	M	....	....	....	....	....	....	....	....	....	....	....	2	2	....	....	....
	F	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....
	Total	...	....	....	....	....	1	....	....	....	....	....	2	3	....	....	....
April 1 to 8	M	....	....	....	....	....	1	1	....	....	....	....	....	2	....	....	....
	F	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....
	Total	....	....	....	....	....	2	1	....	....	....	....	....	3	....	....	....
" 9 to 16	M	....	....	....	....	....	....	2	....	....	....	1	2	5	....	....	....
	F	....	....	....	....	....	....	1	....	....	....	....	....	1	....	....	....
	Total	....	....	....	....	....	....	3	....	....	....	1	2	6	....	....	....
" 17 to 24	M	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	F	....	....	....	....	....	1	....	....	....	....	....	....	1	....	1	1
	Total	....	....	....	....	....	1	....	....	....	....	....	....	1	....	1	1
" 25 to 30	M	1	....	....	....	1	2	....	....	1	....	....	1	4	....	....	....
	F	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....
	Total	1	....	....	....	1	2	....	....	1	....	....	2	5	....	....	....
May 1 to 8	M	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....
	F	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....
	Total	....	....	....	....	....	....	....	....	....	....	....	2	2	....	....	....
" 9 to 16	M	....	....	....	....	....	1	3	....	....	....	....	1	5	....	....	....
	F	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	Total	....	....	....	....	....	1	3	....	....	....	....	1	5	....	....	....
" 17 to 24	M	....	....	....	....	....	1	....	....	....	....	....	1	2	....	....	....
	F	....	....	....	....	....	....	1	....	....	....	....	....	1	....	....	....
	Total	....	....	....	....	....	1	1	....	....	....	....	1	3	....	....	....
" 25 to 31	M	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....
	F	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....
	Total	....	....	....	....	....	1	....	....	....	....	....	1	2	....	....	....

who died in the City of Toronto during the year 1876.—*Continued.*

Old Age.	Developmental Diseases of Old People.	Diseases of Nutrition.	Atrophy and Debility.	Accident or Negligence.	Fracture or Contusion.	Wounds.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Otherwise.	Killed by Cars.	Total Deaths from Accident or Negligence.	Homicide (Murder).	Suicide.	Execution.	Violent Deaths (not classed).	Sudden (cause not known).	Cause not Specified.	Erroneously Specified.	Other Diseases.
2											1		1								
1																					
3											1		1								
		1																			
1							1						1						1		1
1		1					1						1						1		1
1		1																			
																			1		
1		1																	1		
1		1																			
1																					
2		1																			
2																					
		1							1	1			2						2		1
2		1							1	1			2						2		1
									1				1								
1																					
1									1				1								
												1	1							1	
												1	1							1	
							1						1								
1																			1		
1							1						1						1		
																			1		
1								1					1							1	
2								1					1						1	1	
									1				1							1	
1																					
1									1				1							1	

TABLE M.—Showing the Ages and Causes of Death of the Persons

MONTHS.	Sex.	Integumentary System.					Developmental Diseases of Children.								Development al Diseases of Women.		
		Phlegmon.	Ulcer.	Skin Disease.	Tumour (part not stated).	Total Integumentary System.	Still Born.	Infantile, Premature, &c.	Cyanosis.	Spina Bifida.	Other Malformations.	Teething.	Infantile Debility or Marasmus.	Total Developmental Diseases of Children.	Puramenia.	Childbirth.	Total Developmental Diseases of Women.
June 1 to 8	M												2	2			
	F						1						1	2			
	Total						1						3	4			
" 9 to 16	M												2	2			
	F																
	Total												2	2			
" 17 to 24	M							1					3	4			
	F												1	1			
	Total							1					4	5			
" 25 to 30	M																
	F												1	1			
	Total												1	1			
July 1 to 8	M												2	2			
	F																
	Total												2	2			
" 9 to 16	M												1	1			
	F												3	3			
	Total												4	4			
" 17 to 24	M						1							1			
	F						1	1					1	3			
	Total						2	1					1	4			
" 25 to 31	M							1				2		3			
	F						2							2			
	Total						2	1				2		5			
August 1 to 8	M						3						2	5			
	F																
	Total						3						2	5			
" 9 to 16	M								1				2	3			
	F						1	3				1	3	8			
	Total						1	3	1			1	5	11			

who died in the City of Toronto during the year 1876.—*Continued.*

Old Age.	Developmental Diseases of Old People.	Atrophy and Debility.	Diseases of Nutrition.	Accident or Negligence.									Homicide (Murder).	Suicide.	Execution.	Violent Deaths (not classed).	Sudden (cause not known).	Cause not Specified.	Erroneously Specified.	Other Diseases.	Sunstroke.
				Fracture or Contusion.	Wounds.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Otherwise.	Killed by Cars.	Total Deaths from Accident or Negligence.									
								2			1	3									
1							1					1									
1							1	2			1	4									
1																					
1																					
											1	1							1		
											1	1							1		
								4		1		5							1		
	1																				
	1							4		1		5							1		
1																			1		
1																			1		
	1																				
1														1							
1	1													1							
1																					
																		1		1	1
1																		1		1	1
								4				4									
1																		2			
1								4				4						2			
2	2							1		2		3						3			
1																					
3	2							1		2		3						3			

TABLE M.—Showing the Ages and Causes of Death of the Persons

MONTHS.	Sex.	Integumentary System.					Developmental Diseases of Children.								Developmental Diseases of Women.		
		Phlegmon.	Ulcer.	Skin Disease.	Tumour (part not stated).	Total Integumentary System.	Still Born.	Infantile, Premature, &c.	Cyanosis.	Spina Bifida.	Other Malformations.	Teething.	Infantile Debility or Marasmus.	Total Developmental Diseases of Children.	Paramenia.	Childbirth.	Total Developmental Diseases of Women.
August 17 to 24.....	M	....	....	....	....	....	....	1	....	....	....	....	1	2	....	....	....
	F	....	....	....	....	....	....	....	....	....	....	....	3	3	....	....	....
	Total	....	....	....	....	....	....	1	....	....	....	....	4	5	....	....	....
" 25 to 31.....	M	....	1	....	1	2	1	....	....	....	....	2	....	3	....	....	....
	F	....	....	....	....	....	1	....	....	....	....	....	1	2	....	1	1
	Total	....	1	....	1	2	2	....	....	....	....	2	1	5	....	1	1
September 1 to 8....	M	....	....	....	....	....	2	2	....	....	....	1	1	6	....	....	....
	F	....	....	....	....	....	....	....	....	....	....	....	4	4	....	....	....
	Total	....	....	....	....	....	2	2	....	....	....	1	5	10	....	....	....
" to 16....	M	....	....	....	....	....	....	....	....	....	....	1	1	2	....	....	....
	F	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....
	Total	....	....	....	....	....	1	....	....	....	....	1	1	3	....	....	....
" 17 to 24....	M	....	....	....	....	....	1	....	....	....	....	....	2	3	....	....	....
	F	....	....	....	....	....	1	1	....	....	....	....	....	2	....	....	....
	Total	....	....	....	....	....	2	1	....	....	....	....	2	5	....	....	....
" 25 to 30....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
October 1 to 8.....	M	....	....	....	....	....	....	1	....	....	....	....	3	4	....	....	....
	F	....	....	....	....	....	....	2	....	....	....	....	....	2	....	....	....
	Total	....	....	....	....	....	....	3	....	....	....	....	3	6	....	....	....
" 9 to 16.....	M	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....
	F	....	....	....	....	....	1	....	....	....	....	....	1	2	....	1	1
	Total	....	1	....	....	1	1	....	....	....	....	....	1	2	....	1	1
" 17 to 24.....	M	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....
	F	....	1	....	....	1	....	....	....	....	....	....	1	1	....	....	....
	Total	....	2	....	....	2	....	....	....	....	....	....	1	1	....	....	....
" 25 to 31.....	M	....	....	....	....	....	....	2	....	....	....	....	....	2	....	....	....
	F	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	Total	....	....	....	....	....	....	2	....	....	....	....	....	2	....	....	....

who died in the City of Toronto during the year 1876.—*Continued.*

Developmental Diseases of Old People.	Diseases of Nutrition.	Accident or Negligence.									Homicide (Murder).	Suicide.	Execution.	Violent Deaths (not classed).	Sudden (cause not known).	Cause not Specified.	Erroneously Specified.	Other Diseases.
Old Age.	Atrophy and Debility.	Fracture or Contusion.	Wounds.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Otherwise.	Killed by Cars.	Total Deaths from Accident or Negligence.								
1	1																1	
1																		
2	1																1	
						1				1								
																	3	
						1				1							3	
1	1																	
1	1																	
2																		1
								1		1								
2								1		1								1
								1		1								
2																		1
2								1		1								1
1																		
1																		
1								1		1								
1																		
2								1		1								
	1																	
								1		1								
	1							1		1								
2	1																	
2	1																	
																1	1	
																1	1	

TABLE M.—Showing the Age and Causes of Death of the Persons

MONTHS.	Sex.	Integumentary System.					Developmental Diseases of Children.								Developmental Diseases of Women.		
		Phlegmon.	Ulcer.	Skin Disease.	Tumour (part not stated).	Total Integumentary System.	Still Born.	Infantile, Premature, &c.	Cyanosis.	Spina Bifida.	Other Malformations.	Teething.	Infantile Debility or Marasmus.	Total Developmental Diseases of Children.	Paramenia.	Childbirth.	Total Developmental Diseases of Children.
November 1 to 8....	M	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....	....
	F	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	Total	....	....	....	....	....	....	....	....	....	....	1	....	1			
" 9 to 16....	M	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....
	F	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....
	Total	....	....	....	....	....	1	....	....	....	....	....	1	2	....	....	....
" 17 to 24....	M	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	F	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....
	Total	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....
" 25 to 30....	M	....	....	....	....	....	1	1	....	....	....	....	....	2	....	....	....
	F	....	....	....	....	....	....	1	....	....	....	....	....	1	....	....	....
	Total	....	....	....	....	....	1	2	....	....	....	....	....	3	....	....	....
December 1 to 8....	M	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	F	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	Total	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
" 9 to 16....	M	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	F	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....
	Total	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....
" 17 to 24....	M	....	....	....	....	....	....	2	....	....	....	....	....	2	....	....	....
	F	....	....	....	....	....	....	1	....	....	....	....	1	2	....	....	....
	Total	....	....	....	....	....	....	3	....	....	....	....	1	4	....	....	....
" 25 to 31....	M	....	....	....	....	....	....	1	....	....	....	....	....	1	....	....	....
	F	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....
	Total	....	....	....	....	....	....	1	....	....	....	....	1	2	....	....	....

who died in the City of Toronto during the year 1876.—*Concluded.*

Developmental Diseases of Old People.	Diseases of Nutrition.	Accident or Negligence.									Homicide (Murder).	Suicide.	Execution.	Violent Deaths (not classed).	Sudden (cause not known).	Cause not Specified.	Erroneously Specified.	Other Diseases.
Old Age.	Atrophy and Debility.	Fracture or Contusion.	Wounds.	Burns and Scalds.	Poison.	Drowning.	Suffocation.	Otherwise.	Killed by Cars.	Total Deaths from Accident or Negligence.								
1	1																	1
	1																	
1	2																	1
	1																	
1																		
1	1																	
				1		1				2						1	1	
				1						1								1
				2		1				3						1	1	1
3								1		1								
1																		1
4								1		1								1
1							2	1		3								
1																		
2							2	1		3								
2																		
1																		2
1																		
2																		2
							1			1								
							1			1								

REPORT

OF THE

Commissioner of Public Works

FOR THE

PROVINCE OF ONTARIO,

FOR THE

YEAR ENDING 31ST DECEMBER,

1877.

Printed by Order of the Legislative Assembly.

Toronto:
PRINTED BY HUNTER, ROSE & CO., 25 WELLINGTON ST. WEST.
1877.

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REPORT

OF THE

COMMISSIONER OF PUBLIC WORKS,

PROVINCE OF ONTARIO,

FOR THE YEAR ENDING 31ST DECEMBER, 1877.

To His Honour the Honourable DONALD ALEXANDER MCDONALD, *Lieutenant-Governor of the Province of Ontario, &c., &c.*

In compliance with the Act in that behalf, I beg to submit the following Report of the works under the control of this Department for the year 1877.

The details of the operations connected with the construction, improvements and repairs of Public Buildings, the maintenance of and improvements to Public Works, the drainage of lands, and the extension of Railways, are fully explained in the accompanying reports from the respective officers of the Department.

The additions and alterations to the several Public Institutions of the Province under the control of the Department, and for which appropriations were made last Session, have been expedited as rapidly as circumstances permitted, and those buildings which were most required have been completed, and in several instances occupied.

The operations in connection with the construction of the additions to the several Institutions will be continued during the ensuing year, until completion, and it is to be hoped that the contemplated additions will afford all the present accommodation required.

Revotes of the unexpended balances of the appropriations, and the usual provisions for general repairs and improvements will have to be made in the Estimates for 1878.

The maintenance and improvements of the several locks, dams and other works connected with the navigation of the inland waters, and for facilitating the passage of lumber and timber, have been continued during the present year, and are now in an improved and very satisfactory condition.

The Drainage works undertaken by this Department have been completed, and the whole expenditure on surveys and works will be within the appropriations.

The Railway extension for the year has been considerable. Several important lines have been completed and opened for traffic, thereby giving increased facilities for the development of the commercial and agricultural interests of the Province.

Respectfully submitted,

C. F. FRASER,

Commissioner.

Department of Public Works,
Ontario, December 31st, 1877.

REPORT

OF

THE ARCHITECT, ETC.

DEPARTMENT OF PUBLIC WORKS,
ONTARIO, December, 31st, 1877.

SIR,—I have the honour to submit the following Annual Report:—

GOVERNMENT HOUSE.

The general repairs to the building and fences were completed during this season, the outside wood, stone and brickwork, having been painted, and the roof and eaves repaired.

It was found necessary to construct a new tile drain eighteen inches in diameter from the front portion of the building to the sewer passing through the grounds, and the old drains being in an unsatisfactory state, were taken up and connections made with the new drain.

The furniture and furnishings being in want of repair and renewal in several instances, have been put in a proper condition suitable to the purpose.

The grounds have been much improved in appearance, trees having been planted and the outbuildings repaired and painted.

PARLIAMENT AND DEPARTMENTAL BUILDINGS.

The usual ordinary repairs to these buildings have been attended to, and the roofs, drains, furnaces, &c., are now in an efficient condition, but the actual expenditure on such old buildings cannot be considered satisfactory, the results being neither apparent nor commensurate with such expenditure, which is principally on account of renewals of decayed materials, as fully explained in the last annual report.

ASYLUM FOR THE INSANE, TORONTO.

A residence for the Medical Superintendent was erected in the grounds near the eastern entrance, and the building is now ready for occupation, with the exception of the heating apparatus.

Branch water pipes six inches in diameter have been laid in the grounds on the east, west and south sides, and four hydrants constructed, the whole being connected with the City water main, on Queen street. One thousand feet of the best carbolised rubber hose two and a half inches in diameter, and two hose reels have been provided. These will afford the necessary protection against fire in addition to the water supply from the engine house connected with this Institution.

The oak for flooring the lower corridor was provided for the Asylum authorities, and the work was done by the Asylum carpenter, assisted by the patients.

Lumber was also supplied for the construction of sidewalks and other works, the wo k having been done by Asylum labour.

A re-vote of the unexpended balance of the appropriation will be required for the construction of the heating apparatus for the Medical Superintendent's residence, and for other improvements.

ASYLUM FOR THE INSANE, LONDON.

Plans and specifications for two additional cottages for chronic patients, a coal shed, also for the addition to the refractory wards, were prepared as required, and after due advertisement, the tender of Messrs. Wright, Durand & Sons, of London, being the lowest, was accepted for the cottages and coal shed, and the tender of Mr. A. Purdom, London, for the Refractory wards, being the lowest, was also accepted.

The work on both these contracts has progressed in a satisfactory manner during the past season. The cottages will be ready for occupation before the close of this month, and the Refractory wards will be completed according to agreement, on the 1st of July next, the latter building being now roofed in, and a great portion of the internal work being in a forward state towards completion.

The slating, galvanised iron decks, and tinsmiths work of the roof of the main building have been repaired, and the plastering of the ceiling of the amusement hall renewed.

The large chimney shafts to the boiler houses, and the laundry have been raised twenty feet in height to increase the draught for the steam boilers, and a separate chimney has been built for the bakery, the flue previously constructed and leading to the laundry chimney being inefficient.

A re-vote of the unexpended balance of the appropriation, and for the balance of the estimated cost of the Refractory wards will be necessary to complete the work.

ASYLUM FOR THE INSANE, HAMILTON.

The works connected with the erection of the wings and the addition to the rear of the main building, also for a residence for the Medical Superintendent, and houses for the Bursar, Farmer, and Engineer, a brick coal shed, farm buildings, and fences, for which plans and specifications had been prepared, were duly advertised, and the tenders of Mr. A. J. Brown, Caledonia, being the lowest for the wings and rear addition, and that of Mr. E. Van Allen, for the remaining portion as above stated, being also the lowest, were accepted. The works have progressed in a satisfactory manner, the rock excavation for the drains being tedious, but it is now nearly completed.

The contractor for the construction of the Medical Superintendent's residence, and houses for the Bursar, Farmer and Engineer, has nearly completed these buildings. The coal shed and fences were erected during the summer, the former being now in use, and the farm buildings are nearly finished.

A re-vote of the unexpended balance and of the balance of the estimated cost will be necessary for the completion of the wings and rear addition. It is expected that the wings will be ready for occupation on the 1st of September, 1878, when the work is specified to be completed.

It may be desirable that some arrangements should be made with the City Council for the extension of the main drain along Queen street, from Concession street, in connection with the proposed construction of the sewer from the southern portion of the city to the marsh.

ASYLUM FOR IDIOTS, ORILLIA.

The expenditure on account of this building has been very slight, consisting of the amount required for the construction of the gas apparatus, and some improvements and alterations to the gas and water pipes. The gas apparatus has been found quite efficient for the intended purposes, and is an economical method of lighting as compared with coal gas. Duplicate retorts are now being placed in the gas house in order to increase the manufacturing power, the gas holder being of sufficient capacity to contain a larger supply, thereby avoiding the necessity of daily manufacture, and consequent saving of fuel. It is expected that the additional retorts will supply all the gas required for this building without further additions or expense except for repairs.

A re-vote of the unexpended balance will be required for alterations and repairs

CENTRAL PRISON, TORONTO.

An isolated brick Hospital has been built in the lumber yard on the west side of the prison, and is now ready for occupation. The building is fifty-two feet long, thirty-three feet in width, and two storeys in height, with a verandah in front on both floors.

A Gate-keeper's house has also been built at the entrance of Strachan Avenue. The material is of brick and roofed with slate, the size being twenty-seven feet by seventeen, and wing twenty-one by seventeen, one and a half storeys, with wood-shed, &c.

Water supply pipes six inches in diameter, and four hydrants in connection with the City Water Works have been laid in the grounds. Four hundred feet of rubber hose two and a half inches in diameter, and one hose cart have also been supplied as a protection against fire, in addition to the water supply from the engine-house.

DEAF AND DUMB INSTITUTE, BELLEVILLE.

Considerable additions have been made to the building during the year, for which plans and specifications were prepared, and submitted for tenders, after due advertisement, the lowest being that of John Forin, Belleville, which was accepted.

A residence has been erected for the Principal, on the west side of the main building, and is now ready for occupation.

A new dormitory eighty-five feet in length, twenty-five feet in width, and three storys in height, has been built of brick, roofed with slate, the building being on the east side of the main building, affording accommodation for about forty boys, an isolated room for an hospital, and a store room thirty feet by twenty-five feet, with a cellar underneath. This building has been completed for some time, and is ready for occupation.

An addition thirty-three feet by thirty feet, two storeys in height, has been made to the west side of the dining room, affording a large play room for the girls, and an hospital on the second floor, with additional baths in the passage between the main building and the addition. A new brick boiler house has also been constructed in the rear of the kitchen.

Two brick water-closets have been built, one for the boys and the other for the girls on the east and west sides of the main building, each closet being thirty feet in length and fifteen feet in width, one story in height, roofed with slates, and both closets have been in use for some time.

A new main sewer has been constructed on the east side of the grounds with branch drains to the water-closets, workshops, residence, &c.

Tenders have been received for the construction of new boilers and the alterations of the present heating apparatus, also for heating the new dormitory, the lowest being that of W. J. McGuire & Co., which has been accepted.

BLIND INSTITUTE, BRANTFORD.

An addition of brick, sixty-four feet by sixty feet and three storeys in height, roofed with slate and galvanized iron, has been constructed on the south-western end of the main building, to accommodate sixty additional pupils, also for class and work-rooms. This building will soon be completed.

Tenders were received for the steam-heating of the addition and alterations in the south-west wing of the main building, the lowest being that of D. S. Keith & Co. It is expected that the whole of the work will be completed in March next.

A re-vote of the unexpended balance, and the balance of the estimated cost, will be required to complete the addition, &c.

SCHOOL OF AGRICULTURE, GUELPH.

Plans and specifications for an addition ninety-four feet by fifty feet, of stone, three storeys in height, roofed with slate and galvanized iron, were prepared early in the season, and after due advertisement were submitted for tenders; the tender of David Kennedy, Guelph, being the lowest, was accepted. The work has not progressed as expeditiously as

was expected, but the Pupils' dormitories and dining-room were ready for occupation at the opening of the present session, and the work is now progressing towards completion; it is expected that the whole of the work will be completed during the present month.

A re-vote of the unexpended balance will be required to complete the work.

SCHOOL OF PRACTICAL SCIENCE.

According to instructions, advertisements for tenders were inserted in the daily papers and the tender of W. J. Hughes, being the lowest, was accepted, and the building, which is of brick, has been erected on the grounds of the Toronto University, east of the Meteorological Observatory, the front being to the north.

The building is one hundred feet in length, fifty-three in width, and three storeys in height, with a basement, a wing forty-two feet by thirty-four feet, and one storey in height, beside the basement, has been constructed in the rear.

Accommodation will be afforded for the Professors of Chemistry, Mineralogy, and Engineering, also the necessary lecture rooms, laboratories, model rooms, &c., the whole to be heated by hot air furnaces.

It is expected that the building will be ready for occupation in March next.

EDUCATION DEPARTMENT AND NORMAL SCHOOL, TORONTO.

A house for the Engineer has been built on the east side of the grounds, near the Boys' entrance to the Model School, the contract having been let to Messrs. Thompson & Co., their tender being the lowest.

The building is of brick, thirty-nine feet in length, twenty-six feet in width, and one storey in height, with wood shed, &c., and is now occupied. The ordinary repairs to the buildings, drains, steam heating apparatus, &c., have been attended to during the year, and further appropriations will be required for the purpose for 1878.

NORMAL SCHOOL, OTTAWA.

The only expenditure required in connection with this building was for furniture, planting, and ordinary repairs. An appropriation for repairs and improvements to the grounds will be required for 1878.

OSGOODE HALL, TORONTO.

The steam heating of the addition to this building for the Court of Appeal was completed early in the year, and has been found satisfactory.

Several alterations being required in the Judges' apartments of the Court of Chancery, and to make provision for the removal of some of the offices from the Upper to the ground floor, also for cleaning, painting, furnishing, &c., for the Judges' apartments and offices, the work was done during last summer, and the changes have been found of advantage in many respects.

Provision will have to be made in the Estimates for 1878, for repairs, furniture, &c.

COURT HOUSE, &c., SAULT STE. MARIE.

Sundry repairs have been made to this building, and new oak floors were laid down in the Gaol cells and corridors, and the cell locks repaired.

There has been no expenditure on account of the Registry Office, for which an appropriation was made.

A re-vote of the unexpended balance will be required for repairs, furniture, &c.

GAOL AND REGISTRY OFFICE, THUNDER BAY.

The new building erected in 1876, for the purpose of a Court Room and Registry Office, with a Gaol in the rear, was completed in the early part of the season, and the building is now occupied. A covered passage was construeted between the small loek-up previously erected and the Gaoler's apartments, for eonvenienee of aeeess, the small loek-up being used for females.

An appropriation will be required for a fenee round the premises, as recommended by the Inspeetor of Prisons, and also for furniture for the Court Room.

REGISTRY OFFICES.

There has been no expenditure at any of these buildings during the year, except for the Registry Offiee, Braeebridge, a small outlay being required for furniture, matting, &c, the building being now oeeupied by the Registrar.

The usual appropriations for repairs will be required for 1878.

I have the honour to remain,
Your obedient servant,
KIVAS TULLY,
Architect. &c.

Hon. C. F. FRASER,
Commissioner of Public Works,
Ontario.

REPORT

OF

THE ENGINEER

OF

PUBLIC WORKS.

Department of Public Works, Ontario,
Toronto, 31st December, 1877.

Sir,—I have the honour to submit the following report on the construction and maintenance of Public Works, completion of drainage works, and extension of railways throughout the Province during the year ending this thirty-first day of December, A.D. 1877.

Muskoka Rivers Works.

These works embrace various improvements in aid of navigation, and the facilitating the transit of timber, and the details of the work performed during the present year are as follows :

At Matthias' Falls on the south branch of the Muskoka River, a side pier has been constructed 120 feet in length, 14 feet wide and 11 feet high, and about 400 cubic yards of rock and boulders were removed from the bed of the river by blasting with dynamite, the result being the improvement of the channel at a point formerly very injurious to timber in transit down stream.

At Wilson's Falls on the north branch of the river, about two miles from Bracebridge, a side pier has been constructed 245 feet in length, 14 feet wide and 12 feet high, and some blasting has been done to improve the channel, the work as a whole being designed to guide logs and timber in transit so as to send them clear over the fall, and prevent the formation of jams or loss of logs at the site where the pier is built.

In addition to these works small expenditures were made from the same appropriation in the following structures

Replanking a part of the dam at Moon River, which had been taken off in the fall previous, to lower the water while constructing the works at Sandy Grey's rapids. Closing the stop log openings at the Muskoka works, on account of low water in August and September, and caulking and preparing the dredge and scows for service next year.

The following works are required and may have to be constructed in 1878, or subsequent years. At the Muskoka Works, the stop log openings made last year require bed timbers bolted to the rock to meet the stop logs, and additional stop logs are required for keeping up the water sufficiently high to meet the requirements of navigation and lumbering. The cut

near the entrance to the river leading up to Bracebridge requires enlarging and deepening so as to admit of the passage of the steamboat going to and from Bracebridge during the period when the entrance to the river is blocked with timber and sorting booms. Very great inconvenience was caused to public travel last May and June by the sorting booms, which can be remedied in the future by the enlargement of the cut referred to.

The timber brought down the two branches of the Muskoka River last spring was very much injured in transit by abrasion with the rocks, and in passing over some of the falls, in particular the first falls on the south branch, and the damages sustained at those places can only be remedied in the future by the carrying out of works embracing the blasting and removal of rocks, and the construction of slides and side piers.

The navigation of the Lakes Muskoka, Rosseau and Joseph is growing largely in importance chiefly on account of the rapidly increasing population in the Townships of the Parry Sound and Muskoka Districts, extending northerly from those lakes in the direction of Lake Nipissing, and also because the lakes are becoming more used as resorts for summer travel, The season of navigation now closed has been an unusually fine one, the boats having commenced their trips on the 23rd of April, and made their last runs on the 11th of December, a period of time unprecedented in the navigation of the lakes of the Muskoka district.

Wye River Dredging.

A contract with Messrs. Carkin, Stickney & Cram was entered into in May for the dredging required in opening a channel through the bar at the entrance to the Wye River, and the work was completed by them in a satisfactory manner on the 6th of July following, the quantity of material removed being 17,010 cubic yards. The cut made outside the river is about 1,400 feet in length, 60 feet in width, and has a depth of 12 feet below low water. After its completion it was found that some shoals inside the river also required removal, and the whole was completed at the date mentioned. The completion of the work has been of material service to shippers in saving the cost of transhipment from scows to vessels lying outside the bar.

Mary's and Fairy Lakes Works.

These works are connected with the navigation of Mary's, Fairy and Vernon Lakes, which are surrounded with some of the most beautiful as well as fertile lands in the Muskoka District. Those constructed in 1877 are as follows :

A bridge across the river about 400 feet northerly from the head of the lock basin. The main span is 100 feet, with a clear height of 26 feet over ordinary water surface, so as to admit of the passage of the steamboat beneath. The abutments have crib foundations with open timber piers above. The chief span has a truss superstructure with upper and lower chords, and upright and diagonal bracing. The end approaches are trestle structures with 24 feet spans. The whole length is 180 feet, and the work is well executed.

Dredging of the river at several shoals between the lock works and Fairy Lake, and at points below Huntsville bridge, at the bridge, and in the channel leading from Lake Vernon. The dredging was sufficiently advanced to admit of the steamboat passing into Lake Vernon before the close of August, and was completed in September.

A breast-work formed of timber and filled with stone was constructed below the lock, extending from the lower end of the lock wall, down stream on the westerly side of the channel so as to prevent the *debris* from the river floods from entering and filling up the dredged channel below the lower lock entrance. The length is 240 feet, width 6 feet, height 4 feet.

A stop log dam has been erected across the river below the old dam which is a very poor structure erected some years ago by Mr. Fetterly for the use of his saw mill. The new dam is all completed, except the upper work in connection with the stop log platforms, and these will be finished in about a fortnight, when the work is resumed before the spring freshets. The old dam will then be removed, and the water above will be kept in control by the stop log openings, of which there are four, in addition to the sluiceway to the mill. The length of the dam is 160 feet, and its height to top of piers 11 feet.

Some of the material has been procured for the construction of a lift bridge across the canal above the lock, which is required to give access to the mill now cut off by the lock basin, but the work has not been carried out in consequence of a change of site being neces-

sary for greater public convenience, and the change will entail the construction of some additional pierwork, and consequently additional cost. The banks forming the basin above the lock are partly composed of the natural soil of the locality which is a kind of gravelly and sandy loam, and is not well adapted to resist the washing effects of water, and consequently a recent break has occurred in the natural bank on the easterly side of the lock by the water working through and then washing out a channel. A similar, though smaller break has occurred in the artificial bank on the westerly side, and therefore, as navigation is closed, I have given instructions for the closing down of the stop logs above the lock basin which will cut off the water and prevent any further damage until repairs are effected in the spring. For the prevention of such damage in future, some cribwork protection wall and sheet piling will be necessary, which must be constructed before the opening of navigation.

In 1876 a stop log dam was constructed at the foot of Mary's Lake, to replace an old one carried away by a freshet in 1875, it is necessary to extend this by bolting timber on the surface of a flat rock at the westerly side of the dam, so that the water can be kept up in Mary's Lake in dry seasons for the service of the steamboat navigating the lakes named.

When these works are finished they will complete those required for the navigation of Mary's, Fairy and Vernon Lakes. It was at one time supposed that Peninsula Lake could be added to the same chain of navigation, but I had the matter tested by survey last year, and found it would be necessary to excavate a channel a mile and a half long, at a cost which would be in excess of the benefit to be obtained, and the work would at the same time entail the lowering of the surface of that lake.

Scugog River Crib-work, &c.

The work performed under that head during the present year has been the construction and re-building of a crib-work wall extending along the edge of the river from near the lock, and the constructing and placing of booms to guide the timber and scows passing under the Wellington street bridge.

Balsam River Works.

Piers and booms have been constructed to protect the dam and its apron, and guide the timber in passing down towards the slide, and piers and booms have also been constructed at the outlet of Burnt River for use in the sorting of the timber coming down that river, and preventing its interfering with the navigation of Balsam River.

The scarcity of water during the latter part of the summer has been much felt on these waters, and much of the water from Gull Lake and Balsam Lake had to be let down to assist the navigation of Sturgeon Lake, and the supply in Cameron Lake had got short before that time.

Additional areas for water storeage are much needed, and these can be obtained to a considerable extent, by the construction of dams at Gull Lake, Stormy, Little Bear, and Bear Lakes, the areas of which in all are considerable, and the first named is used for navigation between its outlet at Moores' Falls and Minden. Dredging is also required for the improvement of the navigation in the river between the head of Gull Lake and Minden, in which there are several shoals, formed of gravel and boulders.

Gull and Burnt River Works.

The following works were constructed and completed during the present year :—

Norland dam and slide on the Gull River, the works of which were commenced in 1876.

Ke-ne-ses Lake dam has been re built, it is at the outlet of Ke-ne-ses Lake, in the Township of Havelock, and contains a superficial area of 3,190 acres, which gives a valuable reserve supply of water.

Hawk Lake dam on a continuation of the same waters, has also been re-built.

These waters all discharge into the Gull River system.

On the Burnt River waters the following works have been carried out :—

The raising of Mud Lake dam, in the Township of Dysart, east of Haliburton.

Grace Lake dam on a branch of the Burnt River, in Lot 34, in the 15th Concession of

Monmouth. The water held back by the dam extends up the river into Grace Lake, in the Townships of Dudley and Harcourt.

Otter Lake dam below the outlet of Otter Lake, on Lot 25, in the 14th Concession of Monmouth, has a length of 150 feet, with a height of 8 feet. The area of the lake covers about 1,000 acres of surface, and will form a valuable reserve feeder to the Burnt River waters, which will be of use in running timber, and for purposes of navigation in Cameron and Sturgeon Lakes.

Repairs were made to a dam and slide on lot 26, in the 9th concession of Monmouth; but additional re-construction will be required on these works in 1878.

At the long rapids of Burnt River, on lots 12 and 13, in the 6th concession of Monmouth, the channel has been improved by blasting and removal of boulders.

Repairs were made on a dam and slide on the Burnt River, on lot 7, in the 5th concession of Monmouth, and a new wing dam has been built, 55 feet in length. The place is known as the High Falls, and there is a long slide 6 feet in width.

At the rapids known as the "Dumps," on lot 5, in the 5th concession of Monmouth, the channel has been improved by doing a considerable amount of blasting. A new pier will be required there next year.

Blasting and removal of boulders from the channel of the Burnt River has also been carried out on lots 2 and 3 in the 6th concession of Monmouth, and lots 34 and 35 in the 5th concession of Glamorgan, and also at the crossing of the Buckhorn road.

At the "Devil's Gap," Burnt River, on lot 9 in the 6th concession of Glamorgan, a side pier has been built 170 feet long and 6 feet high; and a large quantity of boulders have been blasted and removed from the channel between that point and Thompson's Rapids.

At Thompson's Rapids, Burnt River, on lot 6, in the 6th concession of Glamorgan, the work accomplished consists of blasting rock at the falls, and blasting and removal of boulders.

There are two falls between Devil's Creek and Thompson's Rapids. The first is about one mile below Thompson's Rapids, and is called the Marble Quarry Rapids, at which place the work performed consisted in blasting and removing boulders from the channels.

The second fall is about half a mile above Devil's Creek, and is known by the name of Barr's Rapids; here the work was comprised in the blasting away of a large projection of rock that divided the channel over the falls, and the removal of boulders.

At Devil's Creek the work performed consists of a new slide 150 feet in length, and some repairs to the dam, which is old, and requires reconstruction the ensuing winter.

At Jacob's Ladder, situated about five miles above Kinmount, considered one of the worst falls and rapids on the Burnt River, the work performed consisted of blasting rock at the falls, and blasting and removing boulders below the rapids.

At the "Three Brothers" Falls, in the Township of Snowdon, on the Burnt River, the work performed consisted of blasting and removing boulders below the falls. The character of the work which would be necessary to effect any improvement in the actual falls at that locality would be of too expensive a nature to deal with at present, and therefore they were left untouched.

Appropriations are required in 1878 for service on the following works of reconstruction and improvement in connection with the chain of works on the Burnt River waters:—

Repairs to the dam and slide on the Burnt River, on lot 26 in the 9th concession of Monmouth.

Re-construction of a side pier at the slide on the Burnt River, on lot 5 in the 5th concession of Monmouth.

Rebuilding of the old dam at the Devil's Creek slide.

A side pier and rock blasting is required at the Big Falls, on the Burnt River, below Kinmount.

The slide at Fenelon Falls, which has been considered a continuation of the Gull and Burnt River Works, requires re-planking before the opening of navigation.

Stormy, Little Bear, and Bear Lakes and Outlets.

A survey and examination of these lakes have been made with a view of utilizing their areas for increasing the supply of reserve water, so as to avoid draining off so much of the

waters of Balsam Lake as became necessary in consequence of the recent dry summer, as mentioned in connection with the Balsam River works.

The total areas of the three lakes cover a surface of 1,020 acres, and with dams raising the water five feet in each, they would give an available supply equal to six inches in depth over the surface of Sturgeon Lake, which has an area of about 10,000 acres.

The greater part of the lands surrounding these lakes are owned by the Crown. They are in the Townships of Glamorgan and Monmouth, and discharge into the Burnt River, on lot 26, in the 5th concession of Glamorgan.

Maintenance of Locks and Bridges.

Early in the present year repairs were made on the mitre sill platforms and valve gear of the locks at Lindsay, Balsam River, Young's Point, and Port Carling. The work under water was carried on by means of a diver with the necessary Air Pump, and diving suit, and the locks were placed in excellent condition for the season at a less cost than could have been effected by any other means. The swing bridge at Port Carling, which moved with some difficulty was adjusted and furnished with turning gear similar to that used on the Lindsay bridges. All were in good order at the close of navigation, but will require readjustment before the opening of the lakes next year.

A lockmaster was appointed at the Mary's and Fairy Lakes Lock early in July, and the new steamboat commenced the navigation of those lakes in the latter part of August.

London Asylum Works.

Sewage Vault and Filters.

A description of these vaults and their intended use is given on page 18 of your repor for last year. The moveable tank and portable sewage pump were obtained early in the present year, and have been used for emptying the vault and distributing the contents over the lands of a part of the Asylum farm where the liquid will act as a fertilizer. The tank and pump are highly efficient for the purpose, but the area of the vault is so large in proportion to the accumulation of solid matters therein, that they will not be required to be used oftener than twice a year, probably in the spring and fall.

Some difficulties in the working of the filters have been encountered during the year from the choking of the gravel by clogging with grease, soap suds and dirt, of which a large scum forms on the top of the liquid in the sewage chamber. This difficulty has now been successfully got rid of by the placing of a diaphragm or perpendicular board across the width of the vault about three or four feet from the gratings leading into the filters, it rises about two feet above the surface of the fluid and dips about the same below. By this means the greasy scum which floats on the top of the liquid in the vault is held back, the solid matter deposits in the bottom of the vault, and the liquid flow passes through the gravel and charcoal, and emerges clear and odourless.

Water Supply.

The requisite machinery for utilizing the large supply of water in the new well has been completed by the erection of a new horizontal engine, and placing a double cast-iron pump in the well with working barrels placed at a depth of 70 feet below the surface. The pumps are connected with the tanks in the main building of the Asylum by four and five inch wrought iron main pipes, and connections therefrom to the new buildings.

The pumps and engine are capable of delivering 600,000 gallons in the 24 hours, which is a larger quantity than will ever be required. The whole service in that respect is now complete, and in thorough working order. The supply of water obtainable from the well is largely in excess of what I mentioned in last year's report, and I believe is fully equal to 1,000,000 gallons per diem, and in quality it is the purest kind obtainable. By the kindness of the Inspector of Asylums and Prisons, I give the following extract thereon from the Report of the Superintendent of the Asylum for the Insane, at London :—

"We have pumped this new well at the rate of six hundred thousand gallons a day, and I believe it would supply a million gallons a day if required. The water is of excellent quality. The well-known chemist and scientist, Wm. Saunders, Esq., of this city has analyzed the water with the following result:—

'I completed the examination of the water from your deep well to-day (September 20th, 1877), and find it to be remarkably good. I could not detect any trace of organic matter, and from one imperial gallon of the water evaporated to dryness, I obtained a *fraction less than twelve grains* of earthy matter, which is the smallest proportion of earthy constituents I have ever met with in any well water or spring water that I have examined. This earthy residue consists mainly of carbonate of lime, with traces of chlorides of lime and magnesium; and sulphate of lime. You have abundant reason to congratulate yourself in that you have obtained such an abundant and convenient supply of water, so very free from earthy and other impurities.

The health of the Asylum has never been better than it has been since we began to use this water."

The new pumping engine is erected in a new building over the well and adjoining the boiler-house, from the boilers of which the steam for its use is obtained, and the former pumping engines and wells are not now in use, although I believe they are kept in good order. The pumping, which formerly occupied the whole of each day is now done in about five hours.

Drainage Works.

On page 19 of your Report for 1876 are mentioned those townships in which drainage works were completed at the close of that year.

During the present year the works have been completed in the Townships of Sombra, and Sarnia in the County of Lambton, and West Tilbury in the County of Essex. These comprise the last of the Drainage Works undertaken by the Government under the provisions of the Acts 33rd Vic. chap. 2, and 36th Vic. chap. 38. The unexpended balance of the amount voted by the 33rd Vic. chap. 2, lapsed under the provisions of the 36th Vic. chap. 38, and therefore the whole sum provided for Drainage Works by both Acts is as follows:

Expended under 33rd Vic. chap 2	$163,362 34
Provided by 36th Vic. chap 38	200,000 00
Total.....	$363,362 34

The total expenditure on surveys and works falls within the appropriation.

The drains constructed have in many instances largely improved the character and value of the lands they were intended to serve.

In addition to what are called the Government drains, large drainage works are being carried on by the Municipalities of many of the westerly counties, under the provisions of the "Municipal Act of 1873," and the "Municipal Drainage Aid Act."

The results of the works under both systems are that large areas of hitherto unproductive lands have been brought under cultivation, adding greatly to the values of the properties in the counties where the wet lands have been unwatered.

Extension of Railways in 1877.

The works in progress during the year on the several new Railways in construction in the Province, comprise in all a total length of 280½ miles, on ten different lines. Of these, eight are Railways on which works have been reported as in construction in 1876, or previous years, and two are lines on which I have not previously reported, as the works have been commenced within the present year. They are,

1. The Stratford and Lake Huron Railway.
2. The Kamanistiquia and Prince Arthur's Landing Railway.

All the Railways in construction during the year are to have the national or 4 feet 8½ inch guage, excepting the Lake Simcoe Junction Line, which has a 3 feet 6 inch guage.

Stratford and Lake Huron Railway.

The Stratford & Lake Huron Railway may be considered an extension of the Port Dover & Lake Huron Railway. It commences at the same depot at Stratford, and will, I believe, be worked by the same Company. The works at present extend from Stratford to Listowel, a distance of 27 miles, on which the iron is laid throughout, and about 18 miles said to be ballasted. The work was commenced and carried through so far during the present year. The line will form a short connection with the Grand Trunk Railway, at Stratford, and will shorten the rail communication between Listowel and Woodstock, Ingersol, London, and other towns in the south-western part of the Province.

Kingston and Pembroke Railway.

The whole length of the Kingston & Pembroke Railway between Kingston wharves and the Mississippi River, is 60.320 miles, which is now completed and open for traffic. Of this, 14.774 miles in length has been completed during the present year. The northerly half of this line passes through the Laurentian formation, and there are many heavy rock cuttings. The alignment and grades throughout the country north of Sharbot are necessarily affected by the character of the country traversed, and therefore going north there are some grades as high as 79 feet to the mile, and going south as high as 60 feet, while the curves range from 0° 51″ to 6° curves, of the latter there are about 3 miles in a length of 14 miles.

The road is located for construction from the Mississippi to the Madawaska, a length of 28 miles.

At Iron Junction, 30 miles from Kingston, a narrow guage branch is being constructed eading to the Glendower Iron mines.

Lake Simcoe Junction Railway

The Lake Simcoe Junction Line extends from Stouffville on the Toronto & Nipissing Railway, to Jackson's Point, on Lake Simcoe, and is now fully completed. The alignment and grading are well carried out, and the bridge structures well and strongly built. The chief station on the line is Sutton, about one and a half miles from the northerly terminus. The road will be worked as a branch of the Toronto & Nipissing Railway, and therefore has the same guage. Trains are now running daily over the line between Sutton and Stouffville.

Credit Valley Railway.

In the report of last year details are given of the proposed system of the Credit Valley Railway and its branches, and the length graded on each section.

During the present year the works have been chiefly confined to the grading and bridging of the line between Ingersol and Woodstock, a length of about 10 miles.

The bridging consists entirely of trestle, and pile structures, with spans of 16 and 20 feet, and together with the formation and grading is well carried out.

Victoria Railway.

The connection of the Victoria Railway in the Town of Lindsay, with the Whitby, Port Perry & Lindsay Railway, has been completed, and both roads now use a Union station in Lindsay. The extension in Lindsay is 1.442 miles, and therefore the whole length completed to Kinmount is 33.442 miles.

Grading and bridging are in progress on the next section of 10 miles, extending from Kinmount in the direction of Haliburton, and a considerable amount of heavy rock excavations have been carried on. I am informed that the iron is on hand for the section, and that some of it is laid.

The rough character of the surface along the line which is in the Laurentian formation after the first twenty miles north of Lindsay, will render a large average of curvature necessary on the railway beyond Kinmount.

Hamilton and North-Western Railway

At the close of last year the Hamilton and North-Western Railway was graded between Hamilton and Georgetown, a length of 35·021 miles. The iron was nearly all laid, but the ballasting was only partially done. During the present year that portion of the line has been completed and opened for traffic; and construction has been commenced and carried on with rapidity on the following additional portions of the system of that line:—

Port Dover to Jarvis	9·00	miles.
Georgetown to Barrie	60·443	"
Clarksville to Glencairn	18·424	"
Total commenced this year	87·867	miles.

The work throughout is well executed, and has been carried on with great rapidity, so that the line between Hamilton and Barrie is to be opened for traffic before the end of the present year, and the portion between Jarvis and Port Dover is now graded and ready for tracklaying.

The Hamilton and Lake Erie Railway Company having amalgamated with the Hamilton and North-Western Railway Company, under the name of the latter, the southerly terminus of the line will be at Port Dover, on Lake Erie, where there is a good harbour, and its northerly terminus, at present, is at Barrie; but the extension of the Glencairn or Collingwood branch to Collingwood will then give a northerly terminus on the Georgian Bay, Lake Huron.

The alignment and location are good, the grades and curves being favourable.

As it is proposed to open the line to Barrie and Glencairn before the close of the year, the whole length opened for traffic in 1877 will be as follows:—

Hamilton to Georgetown (opened early in the year)	35·021	miles.
Georgetown to Barrie	60·443	"
Clarksville to Glencairn (on Collingwood branch)	18·424	"
Total	113·888	miles.

The whole length of the railway from Port Dover to Barrie is 137 miles.

Whitby, Port Perry and Lindsay Railway.

The Whitby and Port Perry Railway formerly open for traffic only between Whitby Harbour and Port Perry, has been extended to the Town of Lindsay, where it connects with the Victoria Railway at a union station. The length of the extension is 25·945 miles —and therefore the length of the whole road is 45.945 miles. The extension of the Victoria Railway as a colonization road may be said to be an extension of the same line of railway from the Grand Trunk at Whitby. The distance from which to Haliburton will then be about 100 miles by rail.

The entire country traversed by the line from Whitby to Lindsay is well settled, and the lands fertile.

Midland Railway.

The Midland Railway, which now has trains running between Port Hope, on Lake Ontario, and Wabashene, on the Georgian Bay, has a further extension of the line in progress of construction, so as to make the *final* terminus of the road at Midland Bay, a very good harbour on the waters of the Georgian Bay, Lake Huron.

The length from Wabashene to Midland is under 14 miles, and I am informed that a large amount of grading has been done there during the present year.

Kamanistiquia & Prince Arthur's Landing Railway.

This line of railway is six miles in length, and extends from the wharves at the Village of Prince Arthur's Landing to the Kamanistiquia River, where it connects with the terminus of the Canadian Pacific Railway. It has been built by a Company for the purpose of connecting the harbour and traffic of the Landing with the Railway leading to Winnipeg, and has been so far completed as to be ready for traffic so soon as the connecting switches are laid into the Pacific Railway.

Belleville & North Hastings Railway.

Construction works were commenced on this Railway in 1875, and at the close of 1876 about five miles of the line were graded. The total length of the line is given as 22 miles, extending from a point in the Township of Madoc to its junction with the Grand Junction Railway, about 17 miles from Belleville. During the present year the works have made more progress. The total length now graded being 19 miles, with 3,000 feet of trestle bridging built, and ties mostly distributed.

Mileage of Railways Opened for Traffic in 1877.

Stratford and Lake Huron Railway	27	miles.
Kingston and Pembroke "	14·774	"
Lake Simcoe Junction "	26·500	"
Victoria Railway (in Town of Lindsay)	1·442	"
Hamilton & North-Western Railway	113·888	"
Whitby, Port Perry & Lindsay "	25·945	"
Total	209·549	miles.

Railway Crossings.

With reference to the list of railways crossing each other at various points in the Province, as given in your report for 1876, during the present year six additional crossings have been made, of which two are on the level and four under or over. I therefore conclude my report with a revised list of all such crossings as made or decided on to the end of the present year.

Railways Crossing the Grand Trunk Railway and its Branches.

Railways Crossing under or over the Grand Trunk Lines.

1. Ottawa & St. Lawrence Railway, at Prescott.
2. Brockville & Ottawa Railway at Brockville.
3. Midland Railway, at Port Hope.
4. London, Huron & Bruce Railway, west of Lucan.
5. Hamilton & North-Western Railway, at Georgetown.

Railways Crossing the Grand Trunk lines on the level.

1. Kingston and Pembroke Railway, at Kingston.
2. Grand Junction Railway, at Belleville.
3. Cobourg, Peterboro' & Marmora Railway, at Cobourg.
4. Whitby & Port Perry Railway, at Whitby.
5. Northern Railway, at Toronto.
6. Toronto, Grey & Bruce Railways, at Toronto.
7. Great Western Railway, at Toronto.
8. do. do at Guelph.
9. Port Dover & Lake Huron Railway, at Stratford.
10. do. do. do. near Tavistock.

11. London, Huron & Bruce Railway, at Clinton.
12. Great Western Railway, at Paris.
13. Hamilton & North-western Railway, at Caledonia.
14. Air Line Railway, near Canfield.
15. Canada Southern Railway do.
16. Welland Railway, at Port Colborne.
17. Great Western Railway, branch at Brantford.
18. do. do. near London.

RAILWAYS CROSSING THE GREAT WESTERN RAILWAY AND ITS BRANCHES

Railways Crossing Over or Under the Great Western Lines.

1. Hamilton & North-Western Railway, at Hamilton.
2. Welland Railway, near Thorold.
3. Erie and Niagara Railway, near Clifton.
4. Grand Trunk Railway, near Lucan.
5. Port Dover and Lake Huron Railway, near Simcoe.
6. Hamilton & North-Western Railway, at Jarvis.

Railways Crossing the Great Western Lines on the Level.

1. Grand Trunk Railway, at Toronto.
2. Northern Railway, at Toronto.
3. Toronto, Grey & Bruce Railway, at Toronto.
4. Hamilton & North-western Railway, at Wellington Square.
5. Grand Trunk Railway, at Paris.
6. Port Dover and Lake Huron Railway, at Woodstock.
7. Grand Trunk Railway, east of London.
8. do do at Brantford.
9. do do near Canfield.
10. do do at Clinton.
11. do do at Guelph.
12. Canada Southern Railway, east of St. Thomas.
13. do do west of do.
14. do do near Longwoods.
15. London and Port Stanley Railway, at St. Thomas.
16. Toronto, Grey & Bruce Railway, at Harriston.
17. Erie & Niagara Railway, near Victoria.
19. Canada Southern Railway, and Port Stanley branch at St. Thomas.
20. Credit Valley, near Woodstock.

The level crossings mentioned in connection with the Grand Trunk and Great Western Railways, include some of those of the Canada Southern, Toronto, Grey & Bruce, and other railways. I will therefore in continuation, mention those only on other railways not previously mentioned.

1. Hamilton & North Western, and Canada Southern level crossing at Hagarsville.
2. Port Dover & Lake Huron, and Canada Southern, near Otterville.
3. do do and Brantford & Port Burwell level crossing near Norwich.
4. Northern and Midland Railways level crossing at Orillia.
5. Midland and Toronto & Nipissing crossing at Woodville Junction.
6. Midland and Victoria Railways level crossing at Lindsay.
7. Hamilton & North Western and Northern Railways level crossing near Allandale.

Under or Over Crossings are also made by the following Railways :—

1. Cobourg, Peterboro' & Marmora Railway, crosses under the Midland Railway at Peterboro'.

2. Hamilton & North Western Railway crosses under the Toronto, Grey & Bruce Railway, near Mono station.

3. The Brantford & Port Burwell Railway is making a crossing under the Canada Southern Railway, near Tilsonburgh.

In mentioning the Railway crossings on the Grand Trunk and Great Western Railway systems, I have necessarily reported in each case those crossings where they intersect each other, as well as where they intersect other Railways, and therefore in those cases they are mentioned twice, that is once in connection with Grand Trunk, and once with regard to Great Western crossings. I have not mentioned any crossings of lines now in construction, where the mode of crossing has not yet been determined. It will therefore be seen that, deducting the repetitions mentioned, there are fifty-one cases in the Province in which one Railway crosses another, and that of these, in thirteen cases they cross over or under each other, and in the remaining thirty-eight cases they cross each other on the level.

I have the honour to remain,

Your obedient servant,

THOS. NEPEAN MOLESWORTH,

Engineer of Public Works.

Hon. C. F. FRASER,
Commissioner of Public Works,
Ontario.

STATEMENTS

OF

ACCOUNTANT AND LAW CLERK.

No. 1.—STATEMENT of the Expenditure on Public Works in 1877, and Total Expenditure thereon up to 31st December, 1877.—Capital Account.

NAME OF WORK.	Expenditure from 1st July, 1867, to 31st Dec., 1876.	Expenditure, 1877.	Total.
	$ cts.	$ cts.	$ cts.
Government House	124,744 78	7,434 46	132,179 24
Parliament and Departmental Buildings and Grounds	78,193 99	2,188 97	80,382 96
Asylum for the Insane, Toronto	201,833 12	23,095 59	224,928 71
Do London	451,915 90	66,708 44	518,624 34
Do Hamilton	145,138 81	51,754 67	196,893 48
Do Orillia	29,996 78	4,350 47	34,347 25
Deaf and Dumb Institute, Belleville	133,835 01	21,226 07	155,061 08
Blind Institute, Brantford	133,612 72	16,292 92	149,905 64
Central Prison, Toronto	459,389 35	15,143 69	474,533 04
Reformatory, Penetanguishene	23,981 33	2,963 00	26,944 33
Registry Office and Gaol, Bracebridge	3,636 74	127 12	3,763 86
Court House and Gaol, Sault Ste. Marie	5,507 54	242 86	5,750 40
Government Farm, Mimico	51,646 34		51,646 34
Agricultural College and Farm, Guelph	131,892 02	23,354 20	155,246 22
School of Practical Science, Toronto	59,100 26		59,100 26
Do do New Building		17,143 35	17,143 35
Normal and Model Schools, Toronto	45,939 36	5,890 81	51,830 17
Registry Office and Lock-up House, Parry Sound	2,615 28		2,615 28
Do do Thunder Bay	12,972 06	4,227 82	17,199 88
Registry Office at Minden	2,987 50		2,987 50
Lock-up at Silver Islet, Lake Superior	2,268 79		2,268 79
Do Mattawan, Nipissing District	2,547 20		2,547 20
Brock's Monument	981 10		981 10
Normal School, Ottawa	95,136 78	771 35	95,908 13
Osgoode Hall, Toronto	24,104 03	16,768 94	40,872 97
Lock on Rosseau River, Muskoka	36,946 03		36,946 03
Lock at Young's Point, Peterborough	30,892 72		30,892 72
Lock between Balsam and Cameron Lakes	23,959 02		23,959 02
Lock between Mary's and Fairy Lakes	23,424 45	5,785 29	29,209 74
Cut between Lakes Joseph and Rosseau	9,995 75		9,995 75
Scugog River Works	52,588 55	998 92	53,587 47
Pigeon River Works	4,999 62		4,999 62
Sydenham River Works	2,156 26		2,156 26
Nottawasaga do	5,915 09		5,915 09
Kaministaquia do	22,865 02		22,865 02
Muskoka do	15,974 19	3,678 29	19,652 48
Otonabee do	2,520 55		2,520 55
Balsam do	2,281 37	1,799 58	4,080 95
Gull and Burnt do	22,711 66	7,998 31	30,709 97
Wye do	98 95	5,078 03	5,176 98
Trent River Bridge	2,000 00		2,000 00
Bridges at Port Carling	3,046 99		3,046 99
Bridge at Port Sandfield	2,338 43		2,338 43
Muskoss Falls Works	5,013 00		5,013 00
Muskoka Lakes Works	1,470 36		1,470 36
Washago and Gravenhurst Road	32,792 12		32,792 1
Wharf at Washago	489 22		489 22
Portage du Fort Bridge	4,997 99		4,997 99
Clearings and Log-houses on Free Grant Lands, Settlers' Homestead Fund	16,780 75		16,780 75
Roads in Ryerson	7,295 06		7,295 06
Surveys, Inspections, Arbitrations, and Awards, &c.	9,119 01	2,372 28	11,491 29
Aldborough Drainage Works	7,199 02		7,199 02
Brooke do	34,747 73		34,747 73
Delaware do	5,740 93		5,740 93
Dunwich do	10,105 86		10,105 86
Ekfrid, Caradoc, and Medcalf Drainage Works	13,667 66		13,667 66
Grey Drainage Works	8,175 47		8,175 47
Moore do	17,070 81	20 77	17,091 58
Mosa do	12,714 75		12,714 75
Nissouri, West, Drainage Works	8,178 50		8,178 50
Raleigh do	36,409 64		36,409 64
Russell do	11,543 77		11,543 77

No. 1.—Statement of the Expenditure on Public Works in 1877, and Total Expenditure thereon up to 31st Dec., 1877.—Capital Account.—*Continued.*

NAME OF WORK.	Expenditure from 1st July, 1867, to 31st Dec., 1876.	Expenditure, 1877.	Total.
	$ cts.	$ cts.	$ cts.
Sarnia, Drainage Works	36,830 15	3,710 40	40,540 55
Sombra do	49,867 76	3,301 28	53,169 04
Tilbury, East, do	35,297 62	.....	35,297 62
Tilbury, West, do	26,803 40	4,183 26	30,986 66
Williams, East, do	2,221 75	.....	2,221 75
Surveys and Drainage of Swamp Lands, Provincial Account	36,238 26	210 25	36,448 51
Totals	2,919,462 03	318,821 39	3,238,283 42

F. T. JONES,
Accountant.

Department of Public Works,
Toronto, 1st January, 1878.

No. 2.—Expenditure for Fuel, Gas, Water, Repairs, &c., by the Department of Public Works, during 1877. (Part of Maintenance Accounts.)

NAME OF WORK.	Expenditure for 1877.
	$ cts.
Government House	4,682 88
Executive Council's and Attorney-General's Offices	301 28
East Wing, Parliament Buildings	1,947 67
Department of Public Works	303 41
Crown Lands Department	1,636 64
Parliament Buildings, Centre	7,077 88
Osgoode Hall, Toronto	3,115 10
School of Practical Science	1,113 06
Maintenance of Locks and Dams	1,911 25
Total	22,089 17

F. T. JONES,
Accountant.

Department of Public Works,
Toronto, 1st January, 1878.

No. 3.—Statement of Expenditure from 1st January, 1870, to 31st December, 1877, under the Ontario Drainage Act, 33 Vic., c. 2; 34 Vic., c. 22; and 36 Vic., c. 38, on Drainage Works; chargeable to Municipalities. Also, Total Expenditure under said Act up to 31st December, 1877.

TOWNSHIP.	Total Expenditure from 1st January, 1870, to 31st December, 1876	Expenditure, 1877.	Total to 31st December, 1877
	$ cts.	$ cts.	$ cts.
Aldborough	7,199 02	.....	7,199 02
Brooke	34,747 73	.....	34,747 73
Delaware	5,740 93	.....	5,740 93
Dunwich	10,105 86	.....	10,105 86
Ekfrid, Caradoc, and Medcalfe	13,667 66	.....	13,667 66
Grey	8,175 47	.....	8,175 47
Moore	17,070 81	20 77	17,091 58
Mosa	12,714 75	.....	12,714 75
Nissouri, West	8,178 50	.....	8,178 50
Raleigh	36,409 64	.....	36,409 64
Russell	11,543 77	.....	11,543 77
Sarnia	36,830 15	3,710 40	40,540 55
Sombra	49,867 76	3,301 28	53,169 04
Tilbury, East	35,297 62	.....	35,297 62
Do West	26,803 40	4,183 26	30,986 66
Williams, East	2,221 75	.....	2,221 75
Total chargeable to Municipalities	316,574 82	11,215 71	327,790 53
Preliminary Surveys and Sundries, chargeable to Province	32,634 31	210 25	32,844 56
Total	349,209 13	11,425 96	360,635 09

F. T. JONES,
Accountant.

Department of Public Works,
Toronto, 1st January, 1878.

No. 4.—Contracts and Bonds entered

Date.	Work.	Subject of Contract.
1877.		
Jan. 13	London Lunatic Asylum	Pumping engine and pumps .....
Mar. 22	Gull and Burnt River Works.....	Timber for bridge and dam near Huntsville ..
" 29	Balsam River	Lumber for piers and booms .....
April 24	Agricultural College, Guelph	Addition to main building .....
" 23	Wye River	Dredging channel at bar .....
May 26	London Lunatic Asylum	900 feet of iron water piping .....
June 7	Deaf and Dumb Institute	The dormitory, drains, Principal's residence, water closets, and extension of dining hall
" 11	Bridge between Mary's and Fairy Lakes	Iron work .....
" "	Hamilton Asylum	Residences for Superintendent, Bursar, Farmer, and Engineer; coal shed, farm buildings, fences, and sidewalks
" "	Normal School, Toronto	Engineer's cottage .....
" "	Central Prison, Toronto	Hospital and Gatekeeper's house .....
" 13	Blind Institute, Brantford	Extension. Whole work.....
" 14	London Lunatic Asylum	Cottages for the insane; also coal shed .....
" "	Toronto Lunatic Asylum.....	Medical Superintendent's residence .....
July 5	School of Practical Science	Whole work, except steam heating .....
" 17	London Idiot Asylum	Refractory wards .....
" 16	Hamilton Lunatic Asylum	Wings and additions; also drains, gas and water supply, steam heating apparatus, &c
Aug. 23	Government House	Painting fence.....
Sep. 13	School of Practical Science	Heating.....
Oct. 1	School of Agriculture, Guelph	Cheese factory and drying house .....
Dec. 8	Deaf and Dumb Institute	Steam heating at boys' dormitory, and alterations to present steam supply, &c
" 10	Blind Institute	Steam heating for additions; also alterations to present steam supply, &c.
" 21	Hamilton Asylum	Fences, ice house, and root house .....
" "	Toronto Lunatic Asylum.....	Heating apparatus for Superintendent's residence

Department of Public Works.
Toronto, 1st January, 1878.

into with Her Majesty during 1877.

Contractors.	Sureties.	Amount.
		$ cts.
The Wentworth Engine and Implement Co., Hamilton	Alfred Turner, Hamilton, merchant, and Jesse Smith, Ancaster, lumber-merchant	1,575 00
Peter McDermott and Thomas G. Robinson, Washago, lumber-merchants	Edward Robinson, Washago, and Matthew Parks, Washago	At special rates, about 820 00
John Daniel, Fenelon, farmer		Pine, 09¼ Hemlock, 06
David Kennedy, Guelph, contractor	James Innes, Guelph, publisher, and John Hogg, Guelph, merchant	10,900 00
Carkin, Stickney, & Cram, Goderich	None. 25 per cent. retained for drawback	Per cubic yd. 27
George W. Lewis, Arthur B. Lees, and John Leys, all of Toronto, hardware-merchants	Seymour Porter, Toronto	5 inch pipe, 73 4 inch pipe, 49 513 00
John Forin, Belleville, contractor	John Beer, Belleville, and Sandford Baker, Belleville	18,347 00
The Hamilton Bridge and Tool Company, Hamilton	Alexander Gartshore, William Hendrie, and A. Jameson, all of Hamilton	Wrought, 04¼ Cast, 03 177 07
Eli Van Allen, Hamilton, builder	William Aitchison, David Aitchison, and Robert Thomson, all of Hamilton	19,925 00
Thomas Thompson and Edward Flewell, builders, Toronto	Thomas J. Leonard, Toronto, painter, and James Campbell, Toronto, grocer	1,085 00
Richard Dinnis, Toronto, contractor	James Walsh, Toronto, builder, and William Milligan, Toronto, painter	7,350 00
William Watt, Brantford, builder	William Buck, Brantford, and William Young, Brantford	16,265 00
John Wright, James Durand, Thomas Wright, and Andrew Durand, all of London, contractors	James Moffit, London, and Robert Reid, London	27,590 00
John Palmer, Toronto, contractor	Daniel Hayes, Toronto, builder, and Frederick Edwards, Toronto, builder	7,396 00
William J. Hughes, Toronto, contractor	James Ashfield, Toronto, and John J. Withrow, Toronto	20,775 00
Alexander Purdom, London, contractor	Daniel Lister, London, merchant, and Thomas H. Purdom, London, barrister	45,990 00
Alexander J. Brown, Caledonia, builder	Hugh Stewart, Caledonia, and John Scott, Caledonia	85,000 00
Claude Woolcott, Yorkville, painter	Joseph Jackes, Toronto, barrister	220 00
Robert Sewell, Toronto, stove-merchant	Robert H. Temple and William Hope, Toronto, brokers	2,100 00
John Palmer, Toronto, contractor	Frederick Edwards, Toronto, contractor, and John Strong, Barrie, builder	3,275 00
W. J. McGuire, Toronto, plumber, and James Morrison, Toronto, brassfounder.	James Morrison, Toronto, brassfounder, and John Inglis, Guelph, machinist	5,675 00
David S. Keith and James Fitzsimmons, Toronto, plumbers	William Burke, Toronto, and Silvester Smith, jr., Toronto	2,275 00
Alexander J. Brown, Hamilton, contractor	Hugh Stewart, Caledonia, farmer, and John Scott, Caledonia, Reeve	3,810 00
George Harding, Toronto, plumber	Robert Beaty, Toronto, and Lewis Samuel, Toronto	611 00

F. T. JONES,
Law Clerk.

FINAL REPORT

OF THE

COMMISSIONERS FOR CONSOLIDATING THE STATUTES.

To His Honour Donald A. Macdonald, Lieutenant-Governor of Ontario.

THE Commissioners appointed to consolidate and revise the Statutes, agreeably to the provisions of the Act of the Legislature of Ontario, passed in the Session held in the fortieth year of Her Majesty's reign, and chaptered six, have the honour to report as follows:—

The work mentioned in the Commission appointing us, embraced the following particulars:—

First.—To revise the printed Roll X mentioned in the said Act, in order, without changing the legal effect, to correct any misprint or error, whether of commission or omission, or any contradiction or ambiguity in the said Roll, and in order to make such alterations in the language of the Statutes in the said Roll as should be requisite in order to preserve a uniform mode of expression, and should not alter the legal effect;

Secondly.—To select such Acts and parts of Acts passed during such Session as it might be advisable to incorporate with the said Statutes contained in the said Roll, and to cause them and any other Acts or parts of Acts which were by any Acts of the said Session directed to be incorporated with the said Statutes, to be so incorporated therewith, adapting their form and language to those of the said Statutes (but without changing their effect), inserting them in their proper places in the said Statutes, striking out of the latter any enactments repealed by or inconsistent with those so incorporated, altering the numbering of the chapters and sections, if need be, and adding to Schedule A in the said Act mentioned, a list of the Acts and parts of Acts of the said Session so incorporated as aforesaid;

Thirdly.—To cause to be omitted from the enacting clauses of the Roll hereinafter mentioned, any of the Acts or parts of Acts included among the enacting clauses in such first-mentioned Roll, which might be held to be not within the legislative authority of the Legislature of this Province; and to cause to be inserted in the Roll hereinafter mentioned, making such alterations in their language as should be proper, but without changing the legal effect, any Acts or parts of Acts of the late Province of Canada remaining in force and not included in the enacting clauses of said first-mentioned Roll, which might be held to be within the legislative authority of the Legislature of this Province—and in either of such cases to make such alterations in said Schedule A as should by such omission or insertion be rendered necessary;

Fourthly.—So soon as the said incorporation of such Acts and parts of Acts with the said Statutes, and the said additions to the said Schedule A were completed, to cause a correct printed Roll thereof to be prepared, and submitted for your Honour's consideration, printing in bourgeois type such of the enacting clauses in the said Roll X as should seem proper

to be so printed, and printing among the enacting clauses of such new Roll any of the sections appearing in bourgeois type in the said Roll X, which should appear proper to be printed among the said enacting clauses.

I. In submitting to your Honour the printed Roll prepared by us for your Honour's consideration, we deem it right to make a few remarks with regard to the branches of the work *Thirdly* and *Fourthly* above-mentioned.

The British North America Act, 1867, has divided between the Parliament of Canada and the Legislature of Ontario, the power to deal with the enactments of the late Province of Canada which affect Ontario; but the line of division is not always easily drawn; and that innumerable questions may therefore arise is well known. In a Revision, however, which purports to be a consolidation of the Statutes with which the Province of Ontario has power to deal, there is practically involved the decision, in some sort, of many questions of that kind, which, nevertheless, can only be conclusively determined by judicial decision, after argument by counsel for and against, and in regard to which any expression of opinion by us is to be avoided as far as possible.

The expedient has been adopted of printing in smaller type some sections which are presumably *ultra vires* of a Provincial Legislature, and it is provided by section 4 of 40 V. c. 6, that the clauses so printed shall not form part of the Revised Statutes. With regard to the majority of these sections, there may be little or no doubt; and as the view taken by successive Ministers of Justice of the Dominion, in regard to similar sections, when reviewing the Provincial legislation of each year, for the purpose of reporting upon it to the Governor-General in Council has been that such enactments are not within the powers conferred by the British North America Act upon Provincial Legislatures, we have assumed that, in the absence of judicial decision, the view so expressed should be followed in the Revision, the Governor-General having otherwise the power of disallowance.

In the case of some other enactments, although the authority to enact may be doubted, it has, for the purpose of the Revision, being assumed to belong to Ontario, and the enactments have accordingly been inserted in the Revised Statutes. One class of the cases here referred to may be mentioned, viz., enactments of the late Province of Canada for enforcing by fine, penalty or imprisonment, any law in relation to any subject as to which the Provincial Legislatures have, under the British North America Act, 1867, exclusive powers of legislation. Under clause 15 of the 92nd section of that Act, such provisions may be embodied in an enactment originating with a Provincial Legislature, if the general subject of the enactment is within the authority of the Legislature; and we have adopted, for the purposes of the Revision, the view that the Legislature of this Province has power to repeal and to re-enact in the Revised Statutes, enactments of the late Province of Canada of that kind, although it has been doubted whether such enactments were not, at the time of Confederation part of "The Criminal Law," within the meaning of that expression in the 91st section of the British North America Act, 1867, where subjects in regard to which the Parliament of Canada is to have exclusive power of legislation, are enumerated. No opinion, however, either against or in favour of the power of the Provincial Legislature to make an enactment, is by any omission or insertion of the enactment, intended to be expressed beyond the *pro tempore* decision, which it was necessary for us to make when the practical question arose, whether the enactment should be or should not be consolidated.

A tolerably complete list of the enactments in regard to which the power of the Legislature has been, or may be, considered doubtful, will be found in Appendix C., to the volumes now submitted. In regard to one of the Acts there mentioned, viz.: "The Temperance Act of 1864," a special word or two of comment may be said. The question as to the power of legislation, in regard to the subject of this Act, is at the present moment before the Courts, but as the power has, in some degree, been assumed by the Provincial Legislature, by the enactment of provisions in amendment of that Act, (see 39 V. c. 26, s. 27, and 40 V. c. 8 s. 72), we have thought that it would be proper on that ground alone, if on no other, to insert the Act in the Revised Statutes, with such alterations as will give effect to the Provincial legislation, assuming that legislation to be *intra vires*.

While some of our chief difficulties have arisen from the causes already referred to, these have not been our only difficulties. Consolidation has involved the necessity of deciding numerous questions more or less doubtful, which have not been caused by the division of the powers of legislation, but have risen with regard to the effect of subsequent Acts in repealing

or amending by implication previous Acts; and we may not always have arrived at the conclusion which would be arrived at by a Court after an argument by counsel. The Mechanics' Lien Acts afford an illustration. In the printed Roll X it was assumed that the Act 38 Vict. c. 20, was not intended to repeal the Act 36 Vict. c. 27, and the two were consolidated as if both were in force. The correctness of this construction has in a late case been brought into question, but the Roll X having been before the Legislative Assembly at its last Session, and having received considerable attention, and having been amended by the Legislature in various other particulars, we have assumed that an Act which was so important, and in which so many were interested, did not escape notice, and that the real intention of the Legislature upon the subject was in accordance with what appeared in the Roll X. The consolidation of these two Acts has therefore been left by us as it appeared in Roll X, without our intending thereby to express any opinion as to the proper judicial construction of the Acts. As a rule, any errors which we have perceived in Roll X we have deemed it part of our duty to correct in the Roll which we now submit to your Honour.

II. We have said that we may not always have arrived at the conclusion which a Court would arrive at, after an argument by counsel, and yet it would destroy a great deal of the value of the Revision if litigants should be at liberty to question its correctness in any particular. The Legislature appears to have intended to exclude all such questions, having by the third clause of the tenth section of 40 Vict. c. 6, provided "that if upon any point the "provisions of the said Revised Statutes are not in effect the same as those of the repealed "Acts and parts of Acts for which they are substituted, then as respects all transactions, mat-"ters and things subsequent to the time when the said Revised Statutes take effect, the pro-"visions contained in them shall prevail, but as respects all transactions, matters and things an-"terior to the said time, the provisions of the said repealed Acts and parts of Acts shall pre-"vail." As, however, the authority to make alterations in the Roll X, extends to such alterations only as do not change the legal effect of the existing Acts, litigants may raise the question that, notwithstanding the above quoted provisions of 40 Vict. c. 6, it is still open to contend that the Revised Statutes do not correctly give the legal effect of the pre-existing law. To prevent such an inconvenience, after the Quebec Code had gone into effect under an Act (29-30 V. c. 25), conferring upon Commissioners powers similar to those contained in the above mentioned Act, 40 V. c. 6, the Legislature of Quebec, by express enactment (31 Vict. c. 7), declared the Code to be in force as consolidated. We would respectfully recommend that at the approaching Session of the Ontario Legislature a like enactment be passed.

All which is respectfully submitted.

S. H. Strong, per T. L.,
Geo. H. Burton,
C. S. Patterson,
Thomas Moss,
S. H. Blake,
Jas. Robert Gowan,
O. Mowat,
Thomas Langton.

Toronto, 20th Nov., 1877.

CENTRAL COMMITTEE INQUIRY.

REPORT

OF THE

HON. C. S. PATTERSON,

COMMMISSIONER,

TO HIS HONOUR THE LIEUTENANT-GOVERNOR,

DATED 31ST DECEMBER, 1877,

WITH

REPORT OF EVIDENCE LAID BEFORE THE COMMISSIONER.

Presented to the Honourable the House of Assembly, by Command,

ARTHUR S. HARDY, *Secretary.*

Toronto:
PRINTED BY HUNTER, ROSE & CO., 25 WELLINGTON STREET.
1878.

REPORT

AND

EVIDENCE.

CENTRAL COMMITTEE ENQUIRY

Report on charge made against the Central Committee from the Honourable the Minister of Education to His Honour The Lieutenant-Governor.

EDUCATION DEPARTMENT (ONTARIO).

The undersigned respectfully begs to report for the consideration of his Honour the Lieutenant-Governor in Council the following, respecting charges against the Central Committee of Examiners of the Education Department.

1. Certain charges have recently been publicly brought through the medium of newspapers against the Central Committee, or certain members of it, and the undersigned finds in two of these charges allegations of personal dishonesty or corruption on the part of some of the members of this Committee.

2. These charges are, it is alleged, *firstly*. That there is within the Central Committee a "ring," the members of which have dishonourable relations with the publishing house of Adam Miller & Co., of Toronto; and *secondly*, That in the preparation of examination papers in connection with the Public and High Schools there has been collusion between members of the Central Committee and other parties interested in the work or results of the examinations.

3. The other charges involve only questions of policy in connection with the relations of the Central Committee to the undersigned for which he, as Minister, is alone responsible to the people of Ontario through the Legislative Assembly.

4. It is, however, necessary in the public interest, that the two charges which affect the personal integrity of members of the Committee should be thoroughly investigated without delay, and that the fullest opportunity be afforded to all concerned to establish the truth before an impartial tribunal. The members of the Central Committee have, through their chairman, urgently requested such an enquiry to be held.

5. The undersigned therefore respectfully recommends to his Honour in Council that a Commission, with full powers to summon and swear upon oath witnessess, do issue to the Honourable Christopher Salmon Patterson, one of her Majesty's Justices of the Court of Appeal, to enquire into and report upon to his Honour of and concerning the two charges mentioned in paragraph two of this recommendation.

Respectfully submitted.

ADAM CROOKS.
Minister.

Education Department,
Toronto, September 21st, 1877.

COMMISSION TO THE HON. C. S. PATTERSON, J. C. A.

PROVINCE OF ONTARIO.

VICTORIA, by the Grace of God, of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith. etc,, etc.

To the Honourable Christopher Salmon Patterson, one of Her Majesty's Justices of the Court of Appeal, our Commissioner in this behalf. GREETING.

WHEREAS in and by a statute of this Province. passed in the thirty-first year of our reign, entitled "An Act to repeal chapter 13 of the Consolidated Statutes of Canada, so far as the same relates to Ontario, to authorize the publication of an Ontario *Gazette* and to make provisions for enquiries concerning public matters and official notices," it is enacted that whenever the Lieutenant-Governor in Council deems it expedient to cause enquiry to be made into

and concerning any matter connected with the good government of this Province, or the conduct of any part of the public business thereof, or the administration of justice therein, and such enquiry is not regulated by any special law, the Lieutenant-Governor may, by the Commission in the case, confer upon the Commissioners or persons by whom such enquiry is to be conducted, the power of summoning before them any party or witnesses, and of requiring them to give evidence on oath, orally or in writing, or on solemn affirmation, if they be parties entitled to affirm in civil matters, and to produce such documents and things as such Commissioners deem requisite to the full investigation of the matters into which they are appointed to examine; and that the Commission or Commissioners shall then have the same power to enforce the attendance of such witnesses and to compel them to give evidence as is vested in any court of law in civil cases. And

WHEREAS—The Minister of Education has brought under the notice of His Honour the Lieutenant-Governor in Council the fact that divers charges have been publicly brought through the medium of newspapers against the Central Committee of Examiners of the Education Department, or certain members of it; two of which charges embrace allegations of personal dishonesty or corruption on the part of some of the members of the said Committee, but the others of which involve only questions of public policy in connection with the relations of the Central Committee to the Minister of Education, such two first mentioned charges being the following:

First—That there is within the Central Committee a "ring," the members of which have dishonourable relations with the publishing house of Adam Miller & Company, of Toronto, and

Secondly—That in the preparation of examination papers in connection with the Public and High Schools there has been collusion between members of the Central Committee and other parties interested in the work or result of the examinations. And

WHEREAS—The Minister of Education has reported to our Lieutenant-Governor that he deems it necessary in the public interest that the said two charges affecting the personal integrity of members of the said Committee should be thoroughly investigated without delay, and that the fullest opportunity should be afforded to all concerned to establish the truth before an impartial tribunal; and

WHEREAS the members of the Central Committee have, through their chairman urgently requested that such an enquiry should be held, and

WHEREAS the Lieutenant-Governor of our said Province in Council deems it expedient that inquiry should be made into and concerning the said charges.

NOW KNOW YE THAT WE having and reposing full trust and confidence in you the said the Honourable Christopher Salmon Patterson, do hereby and with the advice of our Executive Council of our said Province appoint you, the said Hon. Christopher Salmon Patterson, our Commissioner in this behalf—to enquire into and report to us upon the two charges hereinbefore set forth, giving to you, our said Commissioner, full power and authority to summon before you any witness or witnesses, and to require him or them to give evidence on oath, orally or in writing, or on solemn affirmation if such witness or witnesses is or are parties entitled to affirm in civil matters, and to produce to you, our said Commissioner, such documents and things as you may deem requisite to the full investigation of the premises, together with all and every other power and authority in the said Act mentioned and authorized to be by us conferred on any commissioner appointed by authority or in pursuance thereof; and

WE DO require you our said Commissioner forthwith after the conclusion of such inquiry to make full report to us touching the said investigation, together with a return of all or any evidence taken by you concerning the same.

In testimony whereof we have caused these our letters to be made patent, and the great seal of our said Province of Ontario to be hereunto affixed. Witness the Honourable Donald Alexander Macdonald, Lieutenant-Governor of our said Province of Ontario, at our Government House, in our City of Toronto, in our said Province, this twenty-fourth day of September, in the year of Our Lord one thousand eight hundred and seventy-seven, and in the forty-first year of our reign.

By command,

I. R. ECKART,
Assistant Secretary.

REPORT OF MR. JUSTICE PATTERSON.

To His Honour Donald A. Macdonald, Lieutenant-Governor of Ontario :

In pursuance of Her Majesty's Commission, bearing date the 24th day of September, 1877, addressed to me, Christopher Salmon Patterson, one of Her Majesty's Justices of the Court of Appeal, and appointing me a Commissioner to inquire into and report upon the two charges therein set forth ; that is to say, two charges, which, amongst others, had been publicly brought through the medium of newspapers against the Central Committee of Examiners of the Education Department, or certain members of it, viz. :—

First—That there is within the Central Committee a ring, the members of which have dishonourable relations with the publishing house of Adam Miller & Company, of Toronto, and

Secondly—That in the preparation of examination papers in connection with the Public and High Schools, there has been collueion between members of the Central Committee and other parties interested in the work or the result of the examination.

I have the honour to report as follows :—

I have inquired into the said charges, and have taken the evidennce of all persons who appeared before me or were adduced as witnesses to give information upon the matters in question, which evidence is submitted herewith.

In the examination of witnesses, and in the discussion of the evidence, I have had the assistance of the counsel for the conductors of the *Mail* newspaper, through the medium of which it was said the charges had been made, and of several members of the Central Committee, and of other persons directly interested in the inquiry.

Having considered the evidence and the arguments which were addressed to me, I have to offer the following observations upon the subject, referring to the evidence herewith reported for more detailed information when required.

The first charge seems to have originated from an idea that the firm of Adam Miller & Co., had an undue advantage accorded to them, in competition with other publishing houses, by receiving information from persons connected with the Central Committee, which enabled them to anticipate the authorization of certain school books, and to prepare editions for publication at an earlier date than rival houses who had no such information could prudently attempt.

It was also suggested that the control of the *Canada School Journal*, published by Adam Miller & Co., and used by the Department as an advertising medium, gave a further unfair advantage to the publishers. The evidence on this subject consisted only of opinions, all entirely speculative, and not in accord with each other. It did not strike me that the existence of the periodical could have influenced the conception of the charge, except so far as the association of the names of some members of the Committee as editors may have seemed capable of being used in evidence to create a suspicion of favouritism extended to the publishers.

In support of the first charge four gentlemen gave their evidence, all of them members of publishing houses, viz. : Mr. James Campbell and Mr. William C. Campbell, of the firm of James Campbell & Son; Mr. Clark, of the firm of Copp, Clark & Co., and Mr. Warwick

On the part of the Committee four witnesses were examined, viz. : Mr. Gage, of the firm of Adam Miller & Co. ; Mr. Cuthbertson, his bookeeper ; Mr. Houston, by whom Mr. James Campbell had supposed the alleged information had been conveyed to Mr. Gage ; and Mr. Vannevar, a bookseller, who was called merely to speak respecting the book trade. I mention at present only the witnesses, other than the Honourable the Minister of Education and the members of the Central Committee.

It will be sufficient to say, with respect to the first charge, that it was entirely unsupported by the evidence. It was not shown that the firm in question enjoyed any peculiar advantage, as tested by a comparison of the number of authorized books published by them with the number published by the house of Campbell & Son ; nor was it shown that in the competition for such books as they control their success was due to any other cause than intelligent enterprise. The existence of dishonourable relations, as well as the assumed found-

ation for the charge, not only received no countenance whatever from the evidence given, but were expressly and satisfactorily negatived.

The examination of witnesses upon the first charge extended to matters of which some were but remotely connected with it, and others were quite beyond its limits, embracing the subject of prices of books at different times and under different departmental regulations and other kindred topics.

I permitted a good deal of latitude in this as well as in the other branch of the enquiry, feeling that as the object was to obtain all the information which could be elicited on the immediate issues to be tried, it would be unwise to exclude any evidence which might, however indirectly, or by connection with other evidence, which I could not anticipate, become applicable. From the character of the enquiry, and from the circumstance that it was an enquiry and not a prosecution, it would have been out of place and undesirable to apply the strictest rules of evidence at the risk of excluding anything which might turn out to be relevant; and the principle which in case of a trial by a jury unaccustomed to nice discrimination between hearsay and knowledge, between opinions and facts, would have compelled the enforcement of those rules did not seem to me to require that by attempting to limit the range of the testimony I should imperil the fulness of the inquiry.

I therefore received the evidence as reported, but I do not conceive that my duty requires me to express any opinion upon the part of it which touches only the extraneous matters.

The second charge.

The only member of the Central Committee pointed at by the evidence in support of the second charge is Dr. McLellan. The evidence was directed to show that he, as examiner, and Mr. Kirkland, the Science Master of the Normal School at Toronto, had, by an understanding between them, arranged the course of teaching, or the tenor of the examination questions so that Mr. Kirkland should be able to give special instruction upon the topics to be embraced by the examination, and thus by the apparent proficiency of his students, acquired by the neglect or cursory treatment of other branches of the subjects of study, obtain an undeserved reputation as an efficient teacher; and also that Dr. McLellan had on one occasion selected examination questions from a book on Statics published by Mr. Kirkland, and from a book of examination papers in arithmetic which had been compiled by Dr. McLellan and Mr. Kirkland. The charge, as regards these books, was not that the books themselves were not useful books, or even valuable additions to our educational appliances, or that a mastery of the propositions they contained would not involve all the knowledge expected to be attained in those subjects by candidates for the public examinations, and it was not that the attention of students had been in any way directed beforehand to the questions which were to appear in the examination papers. But it was, as far as I understand it, that the knowledge that the books were used, or were likely to be used, as the source from which examination questions would be taken, would tend to increase the demand for the books, and so add to the profits they produced; and that the use of them made by Dr. McLellan was made with a view to this result.

I have not been able to form any opinion from the evidence given before me as to how the second charge originated.

The evidence in support of the general charge related to several specific or sub-charges, which I think are reducible to four in number. For the sake of convenience and distinctness I shall refer to them, using the names of the leading witness in support of each one, as

1. The Slater charge.
2. The Brown charge.
3. The Montgomery charge.
4. The Robertson charge.

I have not been informed from what immediate source the information was received by the *Mail* newspaper on which the charges which I have to investigate were based. Every attempt to obtain the names of persons who communicated such information failed. Mr. Belford, one of the editorial staff of that paper, was sworn as a witness, but declined to name the correspondents. Mr. Dickson, who was evidently the promoter of the Brown charge, denied direct correspondence, and refused to disclose through whom certain letters had passed from his hands to those of the conductors of the newspaper. Miss Montgomery inti-

mated that she had arranged the information which she gave at the witness stand, at the instance of some private friends of her own, but she firmly refused to name them; and Mr. Robertson as decidedly declined to say whether he did or did not contribute a memorandum as to which he was interrogated.

In accordance with Mr. Dickson's denial there is a statement in a letter written by him to Mr. Teefy, on the 24th September, 1877, in these words:—

"In regard to the attack on Dr. McLellan, you are incorrect in supposing that I have had a hand in it. I did not begin the attack on him, it began during my vacation, and progressed for upwards of three weeks before I knew anything of it. I have not written a line of the articles that have appeared against McLellan, etc."

I make this extract for the sake of its reference to dates.

The evidence now given by Mr. Brown is shown by him to have come to Mr. Dickson's knowledge some time after the summer holidays.

Miss Montgomery's statement that she was asked by her nameless friends if she could say anything, evidently refers to a date after the charge had been made, and when evidence was being sought for; and Mr. Robertson spoke only from a comparison of a paper used at the examinations in July, 1877, with Mr. Kirkland's book and other books.

From these circumstances it is apparent that when the charge was first made, or (to borrow a phrase from Mr. Dickson) when the attack on Dr. McLellan was begun, it was not founded upon the Brown charge, or the Montgomery charge, or the Robertson charge. The evidence given upon these charges has manifestly been the product of later researches. Unless, therefore, it owed its origin to the Slater charge, or to gossip such as Mr. Slater and others speak of, it must at first have rested on mere suspicion, if its foundation were not still more unsubstantial. I make this remark, not as in any way decisive of the matter in controversy—because, if the charges are proved, it matters little when the evidence was discovered—but for the purpose of observing that while the most ample opportunity has been afforded for adducing evidence; while there is no reason to suspect that the assailants of the Committee have been wanting in diligence; while it cannot be doubted that all the evidence which could be adduced has been brought forward, and while in this sense the enquiry has been a full one, yet the authors of the charge have not come forward, or have not avowed themselves, and so have failed to give me the assistance which might reasonably have been expected by pointing out the specific subjects of complaint, if any such had been in view, and thus rendering the inquiry less rambling and speculative in its character.

I shall refer shortly to each of the four sub-charges.

I believe I am correct in saying that the witnesses I may have to mention, except the four whose names I have used to designate the charges, were called either at the instance of members of the Central Committee or merely in the character of experts.

I.—THE SLATER CHARGE.

Mr. Slater, the teacher of a school at Verschoyle, in the County of Oxford, stated in effect, that in 1871 he happened to see Mr. Kirkland at a railway station when Mr. Sherman or Sharman produced from his pocket an examination paper, and asked Mr. Kirkland if it had been prepared by him, to which Mr. Kirkland replied that he had not prepared it, but that he had handed a book to Dr. McLellan, or Dr. McLellan had handed a book to him (the witness could not be sure which was said) with passages marked. There was no attempt made to show what questions were contained in the paper, or that their general scope agreed with Mr. Kirkland's course of teaching, nor any data given, which could give this evidence any significance, even if it had been reliable in itself.

But, apart from this, I had no reason to suppose that Mr. Slater had correctly understood or had faithfully conveyed the effect of the chance conversation he professed to repeat. On the contrary, several considerations made it clear that no dependence could be placed on his evidence. There was the strong and obvious improbability that, if a concert had existed of the character to which his suspicions pointed, it would have been so freely avowed under the circumstances and in the manner stated. There was the absence of any pretence that the witness clearly heard at the time, or can now remember and repeat, the words used, without which the evidence of an admission is rarely of any value. There was a test which the

witness himself provided of his capacity to apprehend or retain and convey the sense of wha he may have overheard, by his referring to two other occasions on which he had attached to casual conversations an import coloured by the same suspicions. Miss Grant and Mr. McIntosh, the persons to whose words he referred, showed them to have on both occasions entirely misapprehended them. And further inaccuracies or faults of memory were shown by the evidence of Mr. Neil M. Campbell.

II.—The Brown Charge.

It appears that Mr. Brown, a student who had attended Mr. Kirkland's lectures in 1874, had kept some notes. This was known to Mr. Radcliffe, a fellow-student, who mentioned it to Mr. Dickson, of the Hamilton Collegiate Institute.

Mr. Dickson obtained Mr. Brown's note-book and selected from it a certain number of questions to be collated with others in the papers of Dr. McLellan for the examinations for first-class certificates in June and July, 1874, in chemistry, and in July, 1874, in physics. Whether Mr. Dickson did or did not think there was much similarity between the two sets of questions, or did or did not in his own mind attach much importance to such coincidences as he may have noticed, was not made to appear in evidence, although he was examined as a witness.

The evidence on the subject was principally that of Mr. Brown, who had adopted Mr. Dickson's selection, without giving as much thought to the matter as he was led to do in the course of his examination before me, and that of Professor Croft and of Mr. Oliver.

The narrative of Mr. Brown was that, late in the session, Mr. Kirkland had given to his class a number of questions, being those from which Mr. Dickson's selection had been made, and had intimated that, if the students prepared themselves on the subjects of those questions, they would be sure of passing at the coming examination, and that it would not be necessary for them to give attention to the other branches of the subjects.

Several fellow-students of Brown were also examined, viz., Messrs. Birchard, Barnes and Jameson.

From the whole of the evidence, and as much from that portion of it which touches Mr. Brown's note-book as from any other part of it, I have no hesitation in saying that I entirely disbelieve the statement. I do not assume that the witness did not himself believe in its truth when he gave his evidence. I can conceive the possibility of his having done so from the unsuspecting readiness with which he seems to have become the medium of putting forward Mr. Dickson's singularly faulty analysis. But I am satisfied that in 1874 he did not understand, whatever may have taken place in the class in the light in which he now presents it.

The note-book contains twenty-one questions in chemistry. The two examination papers together contained twenty-one questions; of these Mr. Dickson had selected eighteen, as being suspiciously similar to those noted.

In Physic, the note-book contained twenty-seven questions and the examination paper ten, of which seven were said to be similar. No notice was taken of the June examination paper in Physics, so that in this subject it was not contended that the course of special study kept so evenly abreast of the examinations.

When the attention of Mr. Brown was called, in cross-examination, to the assumed points of resemblance, he perceived that in a number of instances his assumption had been too hastily made. The result of Professor Croft's evidence was to show that in several of the questions the resemblance was entirely wanting, or was very slight, and to reduce the greater number of the coincidences to a mere similarity of subject. Mr. Oliver widened the divergence, and was also able to refer to the sources from which some of the propositions with whose similarity Mr. Croft had been impressed, had been derived—sources common to both teacher and examiner, but which had not come under Mr. Croft's notice.

Having regard to the comparatively narrow limits within which the science studies, which are the subjects of these examinations, are confined; to the obvious necessity for the examinations, to be of any value, embracing and being restricted to the same subjects which are taught in the class; to the small number of instances, and to the nature of the questions, in which anything like identity existed; and to the scarcely appreciable effect which the fullest answers to these questions could have been expected to have on the result of the examinations, I am clearly of opinion that the comparison of the papers has

established nothing to indicate, or even naturally to suggest, collusion between the teacher and the examiner.

The direct evidence of collusion was only that of Mr. Brown, of which I have already spoken. The two gentlemen charged—viz., Mr. Kirkland and Dr. McLellan—have expressly sworn that their duties were discharged independently and without concert, and there is nothing in the facts in evidence which tends to discredit their denial.

It may not be unimportant to note that if these gentlemen combined to enhance Mr. Kirkland's reputation by the exceptional distinction gained by his pupils, their enterprise has not been shown to have succeeded.

Before leaving this subject I think it but just, as between the gentlemen charged and their assailants to add the further remark that, after the evidence of Mr. Brown, of Professor Crott, and of Mr. Oliver, it would be difficult to vindicate the honesty with which the questions were selected for collating, except at the expense of the competency of the critic who undertook that task.

III.—The Montgomery Charge

Miss Montgomery, who is a teacher in the Institution for the Blind at Brantford, had attended the Normal School during part of the session which ended in June, 1876. Her statement, in substance, was that within three or four weeks of the close of the session Mr. Kirkland had emphasized certain questions; and that although she did not attach any peculiar significance to this at the time, yet, after she saw the examination papers, she was struck with the similarity between the emphasized questions and those on the paper.

Miss Montgomery had inter-leaved some pages of her copy of Roscoe's Chemistry, and had written upon some of the slips of paper which she had so inserted the questions on memoranda so emphatically given. In her evidence, she said there were thirteen of these slips, and she explained that the first one contained a note on a matter which interested her, but had nothing to do with this examination.

She produced her book and referred to nine of the slips, and to a note written on the margin of a page, which she had now selected as containing matter similar to questions on the examination paper in Chemistry. She would not, however, point out in what particular she found the resemblance, nor would she even venture to assert that the resemblance existed, or that her notes would enable her to answer the questions she had collated with them. These things she prudently said she would leave to others more skilled in chemistry.

The connection between the notes and the questions, beyond a general reference to the same subject, is not apparent to an unskilled reader. The friends at whose instance Miss Montgomery told us she had explored her memoranda did not seem to have carried their zeal to the length of procuring a comparison by any one skilled in the science. At all events, no one came to supplement the meagre evidence which the lady had given.

Looking at the book, I observed that there were nineteen, not thirteen only, of the interleaved slips ; three of them even blank, and some had notes on more than one subject. I noticed, besides, nearly an equal number of notes written on margins.

The proportion of the memorabilia in which the resemblance was surmised to exist did not, therefore, appear very large.

This witness was questioned also about the examination paper in Physics She did not produce any notes of the lectures on that subject, but she spoke from memory of her recollection of most of the topics, and of some of the very questions having been discussed in the lectures.

The other witnesses on the subject of this charge were Mr. Neil M. Campbell, a teacher at St. Thomas, and Mr. Tom, teacher of Chemistry in the High School at St. Mary's.

It was satisfactorily shown by these gentlemen, and particularly so by the notes which Mr. Tom had kept of the same lectures of which Miss Montgomery had spoken, that the parts of the subjects which she had put forward as having been emphasized for special attention towards the close of the session, and with a view to the anticipated ex-

amination questions, had not been so singled out, but were in fact taken up through the course of the session, and in the regular study of the subject.

It is unnecessary to call more particular attention to some features of Miss Montgomery's evidence which would have invited remark, because it really went no further than to show that the examinatio' did not travel beyond the ground covered by the lectures.

If the case had been different—if questions had been set which the instruction given in the school had not provided materials for answering, one might reasonably have questioned the vigilance of the examiner or the thoroughness of the teaching.

IV.—The Robertson Charge.

Mr. Kirkland published a book on Elementary Statics in April or May, 1877. It is authorized by the Minister of Education.

Mr. Robertson, the Mathematical Master of the St. Catharines Collegiate Institute, made a comparison between seven questions on the subject of statics contained in the examination paper prepared by Dr. McLellan for second-class teachers and intermediate examinations held in July, 1877, and he came to the conclusion that those seven questions had been taken from or based on Mr. Kirkland's book. He gave the grounds of his opinion, which were to the effect that the questions were in all essential respects identical; that although the separate questions might be found in other works, no other work contained them all; that the subjects of some of the questions were more fully treated or received greater prominence in Mr. Kirkland's book than in those of other authors; and that the order of the questions on the paper was the same as the book.

The other witnesses on this matter were Mr. Baker, of University College, Toronto, Mr. Jameson, Mr. Murray, Mr. McGregor, and Mr. O'Connor, who showed that the questions were all found elsewhere, though not all in any one book; that the order observed alike in the book and in the examination paper was that given in the official programme of studies; and that the range of questions available for such an examination is very limited.

This is the substance of the evidence. The question is, How does it bear upon the present enquiry? It would appear to me not unlikely that the immediate source from which Dr. McLellan took these questions, all of which are shown to have been already common property, was the book which contained them all, or rather the proof-sheets of the work; for it does not appear that the book was published when the questions were arranged, and it is shown that Dr. McLellan had the proofs. But, assuming that to be so, I have not been able to see what harm was done. The book was not then in the hands of students.

The subject of it was not one of those taught by Mr. Kirkland. Its use could have no effect on the examinations of July, 1877. It is not asserted that it affected or was likely to affect those examinations. The point tried to be made is of a different kind. It is suggested that Dr. McLellan resorted to the book to the extent indicated with the design of stimulating the demand for it among teachers and students. The process of reasoning by which this result was supposed to have been anticipated was not explained to me. Apparently I was expected to assume that students would discover that the seven questions were based on propositions scattered at intervals through Mr. Kirkland's book (pp. 24, 33, 61, 65, 86, 106, 131); that from this they would conclude that the book was the quarry from which problems for future examinations would be dug; and that the importance of mastering the learning contained between its covers becoming widely appreciated, the book would be eagerly bought, its publishers enriched by the profits they received, and its author by the royalties they paid him, while the publishers of rival works, distanced in the unequal competition, looked sadly at the volumes left unsold upon their shelves.

It strikes me that this last contingency expresses the gravamen of the accusation, and may possibly furnish a clue to its parentage—for no one has ventured an opinion that the general use of the work as a text-book in schools would be open to objection.

It is very obvious that to accord any importance to what has been said of the use of

this book, I must indulge in speculation so vague and fanciful as to be out of place in conducting a serious inquiry.

The same witnesses who spoke of the matter I have just discussed, or some of them, gave evidence of a similar character respecting some questions contained in the examination paper in arithmetic for first-class teachers in July, 1877, which were alleged to correspond with others in the book of examination questions compiled by Dr. McLellan and Mr. Kirkland.

Mr. Moses, an Inspector of Public Schools, also gave evidence as to this matter.

Six questions were pointed out by Mr. Robertson, which resembled in principle problems given and solved in the book, or which could be partly answered by the aid of what the book contained, or which in all material points were like others in the book.

It was shown that no identity existed, and that the propositions which resembled each other were not peculiar to this collection. It does not strike me as important to our present purpose to ascertain whether students may or may not think that Dr. McLellan resorts to his published collection of questions for aid in the preparation of his examination papers, or to theorize concerning the effect which such an idea may have in stimulating the purchase and study of the book, or even to consider whether a careful study of the problems it brings together is to be encouraged or deprecated, because nothing in the testimony given before me can fairly be regarded as justifying the imputatiou that the questions set at the examination were based on the problems in the book with the design of promoting its popularity and its circulation.

If I am to understand that the suspicions intimated in the course of the evidence are *bona fide* entertained, it may not be a matter of surprise to find them turned in the direction of this publication, but I am satisfied that, unless directed by pre-conceived suspicion, no one would have attached any siguificance to the points of resemblance which have been pointed out. I have little doubt that the imputation may be more truthfully traced to the fact of the publication of the book than to any intelligent belief that the examination questions were framed with the designs now attributed to them.

There is one part of the evidence to which I have not yet alluded ; viz. : some correspondence between Dr. McLellan and Mr. Teefy.

Its relation to the subjects of the inquiry is very remote and very indirect. It was urged that it bore on the charge of collusion ; and I admitted it with the idea that possibly that portion of it which referred to assistance rendered or offered by Mr. Teefy to Dr. McLellan in the preparation of questions for examinations might not be altogether foreign to that issue. I am unable, however, to find that it can apply in any way.

It was ingeniously argued that Mr. Teefy was a person interested in the work on the result of the examinations, because when he furnished a couple of problems in arithmetic he had some private pupils who intended to come up for examination, and that therefore collusion between Mr. Teefy and Dr. McLellan was shown. But two of the essential elements of such a charge were altogether wanting, viz. : Knowledge on the part of Dr. McLellan that Mr. Teefy was training pupils for the public examinations, and design on the part of Mr. Teefy in preparing the questions.

Unless, therefore, the incident could be used to show that the resort of Mr. Teefy negatived collusion with Mr. Kirkland, which was what was in my mind when I admitted the evidence, it amounted to nothing ; and I am of opinion that is the measure of its value.

The clear result of the whole evidence, in my judgment, is, that neither charge has any support from affirmative proof ; that the charges have not been allowed to be disposed of as simply unproved, but that both have been conclusively rebutted.

All which is respectfully submitted.

C. S. Patterson.

Toronto, 31st December, 1877.

Normal School,
Toronto, September 28th, 1877.

The Honourable Christopher Salmon Patterson, one of Her Majesty's Justices of the Court of Appeal, this day, at eleven o'clock, opened an inquiry under a Commission under the

Great Seal of Ontario, appointing him to enquire into and report upon certain charges publicly brought through the medium of newspapers, against the Central Committee of Examiners, or certain members of it, videlicet:—

"First, that there is within the Central Committee a 'ring,' the members of which have dishonourable relations with the publishing house of Adam Miller and Company, of Toronto, and

"Secondly, that in the preparation of examination papers in connection with the Public and High Schools, there has been collusion between members of the Central Committee and other parties interested in the work or result of the examinations."

Mr. T. J. Richardson (Richardson, Bradley and Lumsden,) was appointed Secretary and Official Reporter to the Commission.

The Secretary read the Commission.

Mr. J. D. Edgar stated that he was instructed by the Minister of Education to represent the Education Department in this Enquiry. He read the report made to Council by the Minister, upon which this Commission was issued, and it is as follows :—

"EDUCATION DEPARTMENT, (Ontario.)

"The undersigned respectfully begs to report for the consideration of His Honour the Lieutenant Governor in Council, the following, respecting Charges against the Central Committee of Examiners of the Education Department.

"1. Certain charges have recently been publicly brought through the medium of newspapers against the Central Committee or certain members of it, and the undersigned finds in two of these charges, allegations of personal dishonesty or corruption on the part of some of the members of this Committee.

"2. These charges are, it is alleged, *firstly*, that there is within the Central Committee, a 'ring,' the members of which have dishonourable relations with the publishing house of Adam Miller & Co., of Toronto, and *secondly*, that in the preparation of examination papers in connection with the Public and High Schools, there has been collusion between members of the Central Committee and other parties interested in the work or results of the examinations.

"3. The other charges involve questions of policy in connection with the relations of the Central Committee to the undersigned, for which he as Minister is alone responsible to the people of Ontario, through the Legislative Assembly.

"4. It is, however, necessary in the public interest that the two charges which affect the personal integrity of members of the Committee should be thoroughly investigated without delay, and that the fullest opportunity be afforded to all concerned to establish the truth before an impartial tribunal. The members of the Central Committee have, through their Chairman, urgently requested such an inquiry to be held.

"5. The undersigned therefore respectfully recommends to His Honor in Council that a Commission, with full powers to summon and swear upon oath witnesses, do issue to the Honourable Christopher Salmon Patterson, one of Her Majesty's Justices of the Court of Appeal, to inquire into and report upon to His Honor of and concerning the two charges mentioned in paragraph two of this recommendation.

"Respectfully submitted,

"ADAM CROOKS
"*Minister.*"

He also read a notice which he had caused to be published in the daily newspapers in Toronto for three days, and it is as follows :—

"EDUCATION DEPARTMENT.

"Public notice is hereby given that the Honourable Christopher Salmon Patterson, one of the Judges of the Court of Appeal, has been appointed by His Honor the Lieutenant-Governor in Council, a Commissioner to inquire into and report upon certain charges publicly

brought against the Central Committee of Examiners of the Education Department, and that he has appointed Friday, the 28th September, 1877, at eleven o'clock in the forenoon at the Library of the Education Department in Toronto, to proceed to open the Commission and give directions as to future proceedings.

"All persons concerned who may desire to summon witnesses are requested to attend with a list of their witnesses.

"ALEXANDER MARLING,
"Secretary.

"Toronto, Sept. 25, 1877."

Mr. N. F. Davin stated that he appeared on behalf of the "Mail" newspaper.

Mr. Edgar gave in a list of witnesses, and the Secretary was instructed to request them to attend.

The Commissioner then adjourned the inquiry until Monday, the 12th of November, 1877.

NORMAL SCHOOL,
TORONTO, November 12, 1877.

The inquiry opened at 11 o'clock.

Mr. Edgar stated that the Minister of Education was present to make a statement at the opening of the inquiry, and to produce in evidence documents which might affect the case.

Mr. Davin asked for the production of certain documents.

HON. ADAM CROOKS, sworn, deposed :—

I was going to mention the different relations which the Department has to booksellers and publishers, and also the constitution and functions of the Central Committee, and then, of course, if any further explanations are required, I shall be delighted to give them on cross-examination, or in answer to either of the Counsel. I am entirely in the position of a witness, and I propose to give the explanations in order rather to proceed more rapidly to the end we have in view. Now, the Central Committee is recognized by the School Act. In the Consolidated Act of 1874, these clauses which express the functions of the Central Committee appear. This will be found in 37 Victoria, chapter 27, and I quote from this instead of the Revised Statutes, because the Revised Statutes are not yet in force. Under section 27, and sub-section 17, the Department, that is, the late Council of Public Instruction, now represented by the Education Department, is required "at the close of the session of any Normal School in the Province, or examination to be held of the students thereof, and to provide for such examination through the said Central Committee."

Then, again, in regard to teachers' examinations, first, in regard to the examination of Normal School students, it is to be done through the Central Committee. Sub-section 22 of section 27 directs the Department to "prepare and prescribe from time to time by a Central Committee of its appointment, or otherwise, a programme, examination papers and regulations for the uniform examination and classification of Public School teachers." Then by sub-section 23, "to award (upon the report of the Central Committee of Examiners) first-class certificates of examination to Public School teachers, under such regulations and programme as may be determined by said Council,"—that is, the Council of Public Instruction ; "and upon the report of such Committee to award second-class certificates to candidates for first-class certificates, who come up to the standard for second-class certificates, but who fail to come up to the required standard for first-class certificates."

The late Council of Public Instruction appointed as members of the Central Committee of Examiners the Rev. Professor Young, Professor of Moral Science in University College, Toronto, and the three High School Inspectors, Dr. McLellan, Mr. Marling and Mr. Buchan. When I took charge of the Department in February, about the 23rd of February, 1876, I found, and in fact, had previously known that the late Council of Public Instruction had in contemplation the appointment of two additional members to the Central Committee, and, as Provincial Treasurer, I had been requested by the late Chief Superintendent, to make requisite provision in the estimates for the year 1876, and the appropriations were voted by the House accordingly ; so, when two additional members were added to the Central Committee upon my recommendation to the Governor-in-Council, that was in order to carry out what had previously been the desire of the late

Council of Public Instruction, and which had been approved of by the Legislature, when it was asked for in connection with an appropriation for two additional members of the Central Committee. In the "Journal" of 1876, at page 49, my recommendation to the Governor-in-Council, will appear, as follows :—

COPY OF AN ORDER IN COUNCIL APPROVED BY HIS HONOUR THE LIEUTENANT-GOVERNOR, THE 17TH OF MARCH, A. D., 1876.

"Upon the recommendation of the Honourable the Minister of Education, dated the 11th day of March, 1876, the Committee of Council advise the appointment of Mr. John C. Glashan, Public School Inspector for West Middlesex, and of Mr. John J. Tilley, Public School Inspector for Durham, as members of the Central Committee of Examiners, as authorized by the Act 37 Victoria, Chapter 27, Section 27, Sub-sections 6 and 22."

Then, in the course of my gaining experience in reference to the Department and the position of the schools, the course of my investigations were inducing me to consider the propriety of conducting altogether through the Central Committee the examinations, not only for first-class certificates, but also for second-class certificates. I had reason to come to the conclusion that the results of the examination of answers to questions by the County Boards of Examiners in reference to second-class certificates, which are perpetual in their character, were not satisfactory. In proceeding from county to county in the year 1876, I came to the conclusion that there was quite a difference in the value, or, rather, that there was an appreciable difference in the results of the reports by County Boards upon answers to questions for second-class certificates prepared by the Central Committee, and that there was, beyond that, that laxity in connection with the examinations for second-class certificates that made it very desirable that, as far as possible, the answers to the questions for those certificates should be all examined and reported upon by the Central Committee, or by proper substitutes instead of being left to the local Boards. It will be understood, that the duty of the Central Committee, in order properly to carry out the instructions of the Act so as to secure a uniform classification of the school teachers, required that the Central Committee should submit all examination questions for firsts, seconds and thirds. Under the former regulations, the County Boards read over and placed values upon the answers to the questions for both third and second class certificates, and the result, so far as I could collect the best views upon the subject throughout the Province, was that it was very desirable, in order to secure more satisfactorily this uniform result in the examination for second class certificates, that the answers to these should be read over as well by the Central Committee. This further circumstance occurred. During the meeting of the Teachers' Association in August, 1876, after some discussion at that Association, I was waited upon by a deputation of Teachers, appointed during the meeting of that Association, and after understanding their views, and hearing that it was desirable in their judgment that a larger number of Public School Inspectors should be represented on the Central Committee of examiners, in order the better to secure what this Association deemed in the interest of the schools, they suggested a further representation of Public School Inspectors upon the Central Committee. Up to that time there were three High School Inspectors and two Public School Inspectors. After considering the subject, I recommended the matter to the Governor in Council My recommendation will be found at page 178 of the "*Journal*." The following is the recommendation on which an Order in Council was based :—

The undersigned begs respectfully to recommend to His Honour the Lieutenant-Governor in Council the following :

"That the Central Committee of Examiners appointed by the Education Department is now composed of Professor Young, with three High School Inspectors and two Public School Inspectors ; that the two last were appointed in order to carry out the recommendation of the late Council of Public Instruction, who thought it expedient that Public School matters would be better represented by the introduction of some Public School Inspectors ; that for the first time in July last, the new Regulations respecting Intermediate Examinations in High Schools were tried, and these Intermediate Examinations are prescribed to take place

half-yearly; that the number of Candidates at the July Examination was 1676, of whom 234 were successful; that these examinations impose new duties upon the High School Inspectors, and absorb a larger part of their time; that the Collegiate Institutes and High Schools which should be half-yearly inspected by them now number 101; that the inspection of Separate Schools is also placed under them so far as the opportunity permits, but it is desirable that as a general rule, these schools should be inspected by the High School Inspectors, as being altogether removed from any possible conflicting interest; that the undersigned has occasion to confer with the Central Committee on many subjects of a scholastic nature, amongst which are included the examination of text and Library books before being authorized for purchase in connection with the High and Public Schools, and that the number of books which are annually submitted by the booksellers and also by the Depository Branch of the Education Department is very large, and would probably exceed 1000 volumes per annum. The undersigned, on assuming charge of the Department, found that no less than 3000 volumes of such books remained for such examination. That in considering the different suggestions emanating from Teachers' Associations throughout the Province, and the opinions expressed by Trustees and Boards of Education, which would involve certain changes in relation to such matters as text-books, the programme of studies, teachers' certificates, and the like, the undersigned would find great advantage in conferring with the Central Committee if the Public School element in it were added to; that additional strength is required to properly conduct the examiuation for teachers' certificates, and in many subjects, especially those peculiarly relating to the management of Public Schools, and the methods and principles of teaching, great assistance could be obtained from examiners so experienced as Public School Inspectors.

In view of these circumstances, the undersigned respectfully recommends that two additional members should be added to the Central Committee, to be chosen from the Public School Inspectors, and that the Committee of Examiners so constituted should be subject to such directions as from time to time may be given by the undersigned, in connection with the performance of such duties as may be assigned to them by the undersigned in reference to the subjects referred to, and the undersigned would respectfully recommend that, in addition to Mr. Glashan and Mr. Tilley, Public School Inspectors, Mr. G. W. Ross, Public School Inspector for Division No. 1, County of Lambton, and Mr. James Hughes, Public School Inspector for the City of Toronto, be also appointed members of the Central Committee of Examiners."

That states concisely the grounds upon which I made the recommendation. The Governor in Council, by an Order in Council of the 24th of November, 1876, made the two additional appointments. The next two references are in regard to the relations of the Department to the booksellers and publishers. First of all, there is this question of library and prize books. Under the Act of 1874, for the first time the liberty was offered to booksellers and publishers to compete with the Depository Branch of the Education Department in supplying books for library and prize purposes to the Public Schools, and, of course, the booksellers and publishers would be entitled to the very same, or rather the trustees of schools purchasing from booksellers would be entitled to the same 100 per cent. allowance which, as the law formerly stood, they received on account of purchases made through the Depository Branch. Trustees purchasing from the Depository to the amount of $10, would require to pay only $5 cash, and the same privilege was, after 1874, for the first time, extended to trustees who thought to purchase from publishers and booksellers, and not from the Depository Branch. Now, upon that one question of library and prize books, the Department had this responsible duty, and which, to a very large extent, was the *raison d'être* for the existence of the Depository Branch, namely, to protect the schools against the introduction of any matter which was likely to be injurious to the schools or to the pupils. The chief object beyond inciting trustees of schools to come forward and obtain library and prize books for their schools,—the larger object was to prevent anything but literature of a correct character finding its way through these purchases of the trustees into the hands of the pupils of our common schools; and when, as I have said in my memorandum, I took charge of the Department, I found that there were a very large number of books that had been submitted by booksellers for the authorization of the Department. As I have said, one of the objects of the establishment of the Depository Branch was, that only such books as were authorized and appeared in the catalogue were open to the trustees, who, to get the 100 per cent., were confined to the books

which appeared as authorized books in the catalogue. And the complaints of booksellers were directed to the circumstance that, although the Act of 1874 had given trustees that privilege, yet they were prevented from dealing with trustees in consequence of so many of the books they had submitted for authorization remaining in the Department unexamined. There were, as I have said, 3,000 of these books. Some partial efforts had been made by the Council of Public Instruction to examine some of them, and 400 or 600 had been examined by Mr. Goldwin Smith, but had not been passed upon by the Council. In relation to library and prize books, the relations of the Department to booksellers are very important and I proceed to explain what the position of the Department is, and what functions the Central Committee exercise in reference to this question. Before I was able to recommend permanent regulations to the Governor in Council, as to the examination of library and prize books, and the arrangements under which trustees could purchase from publishers generally, I was able, through their assistance, to report a large number of books which had been awaiting authorization for some time. At page 149 of the *Journal* of 1876, the following notice appears :—

"7. LIBRARY AND PRIZE BOOKS SANCTIONED.

Lists of Library books numbering 1370 have been sanctioned by His Honour the Lieutenant-Governor in Council, which will be printed in full in the next number of the *Journal*, and in the meantime the books may be obtained."

Then at page 179, is the following Order in Council, approving of the regulations submitted by me on this subject :—

Copy of an Order in Council, approved by His Honour the Lieutenant-Governor, the 24th day of November, A.D. 1876.

Upon the report and recommendation of the Honourable the Minister of Education, dated the 20th November, 1876, the Committee in Council advise that the annexed regulation with respect to the Depository Branch of the Education Department be approved by your Honour.

J. G. Scott,
Clerk, Executive Council, Ontario.

25th November, 1876.

The undersigned begs respectfully to submit for the consideration of His Honour the Lieutenant-Governor in Council, the following, with respect to the Depository of the Education Department namely :—

The Consolidated School Act, 37 Vic. cap. 27, sec. 31, sub-section 29, authorized the payment out of any moneys appropriated by the Legislature, of one-half the cost of any prize or library books sanctioned by the Council of Public Instruction, for Public Schools, and High Schools, which might be purchased by the Municipal or School Corporation, from any Bookseller or other parties instead of at the Depository.

The Chief Superintendent had been also authorized, out of moneys provided by the Legislature, to grant aid in the purchase of Prize and Library Books, Maps and apparatus, to an amount equal to that contributed and expended from local sources for the same object, and the Depository had been established, through which this was being carried into effect.

The extension by the Act of 1874, of this principle of aid to Prize and Library Books purchased elsewhere, has given rise to the question as to the relative terms on which the Booksellers and the Department should supply these books. The late Chief Superintendent, in July, 1874, prepared a case to submit to the Chief Justice of Ontario for his opinion, in order to determine this question. The points involved were (1) what was to be deemed the "*cost*" of books procured from Booksellers or other parties, and (2) the proper "*cost*" of books from the Depository. No opinion was, however, expressed by the Chief Justice.

The Act of 1874, left it optional with Municipal and School Corporations to purchase Prize and Library Books from the Depository or elsewhere ; and if this could be done with equal advantages, the effect would be to protect these Corporations in the quality and price of the books, through the competition of the Depository and Bookselling trade, while the

Depository being continued would ensure the schools always obtaining these books at fair prices.

Purchasers from the Booksellers are by this Act placed under the supervision of the Department, and there are proper safeguards as to the cost, the edition, and binding of the books. It is in the interest of the Schools that the fullest effect should be given to this provision of the Act, which established mutual competition between the Depository and the Trade.

The Booksellers, however, represent that this effect has been frustrated by the Department: firstly, in requiring too formal a procedure in obtaining payment of the accounts for books supplied through them, and, secondly, in having reduced the price of books in the Depository, so as to represent eighteen cents to the shilling sterling, instead of nineteen or twenty cents, which was formerly the charge.

The undersigned proposes to simplify the routine for payment; and as to the price, the undersigned, upon consideration of all the circumstances, which are fully discussed in the different documents before the undersigned, has come to the conclusion that the cost of books furnished by the Depository nearly represents nineteen cents to the shilling sterling.

The undersigned would therefore respectfully recommend your Honour, in Council, to approve of the annexed regulation herewith submitted to that effect.

Respectfully submitted.

ADAM CROOKS,
Minister of Education.

Education Department of Ontario,
Toronto, 20th November, 1876.

Regulation with Respect to the Depository Branch.

The price of Prize and Library Books purchased by Municipal or School Corporations from the Depository, in respect of which aid is granted out of moneys voted by the Legislature shall be based upon (19) nineteen cents to the one shilling sterling, in respect of all Prize and Library Books placed in stock since the 1st of January, 1876.

Then, in order to facilitate purchases from Booksellers follows another Order in Council, dated 20th December, 1876, as follows:—

"Upon the Report of the Honourable the Minister of Education, dated the 16th of December, 1876, the Committee of Council advise that the annexed regulations, respecting purchases of library and prize books from booksellers, be substituted for the requirements under the former regulations of the Council of Public Instruction.

Certified.

J. G. SCOTT,
23rd December, 1876. *Clerk Executive Council, Ontario.*

REGULATIONS RESPECTING PURCHASES OF LIBRARY PRIZE BOOKS FROM BOOKSELLERS —APPROVED BY HIS HONOUR THE LIEUTENANT-GOVERNOR IN COUNCIL.

1. The annexed form of account and guarantee is substituted for that formerly in use.

2. As a general rule one copy only of each book should be supplied to each school, in order that, as far as possible, the information to be found in a variety of books may be widely diffused.

3. The amount of each purchase is not to be under the sum of $10.

4. The books are to be selected *bona fide* for the purpose of Prizes to the pupils of the school, or for the school library, (as the case may be) and are not to be acquired for, or to be disposed of by any teacher or private person, or for any purpose whatsoever, except as Library or Prize books for the school. Any default, by any school corporation, in this particular, will forfeit its right to the one-half allowance for any book to be purchased in future.

Then, under that, different lists were approved, which appeared in the *Journal of Education* for January, 1877, page 7. The Order in Council is as follows:—

"Upon consideration of the Report of the Honourable the Minister of Education, dated the 15th November, 1876, the Committee of Council, under the provisions of 37 Vic. cap. 27, sub-secs 24 and 27, varied by 39 Vic., cap. 16, recommend the books marked as approved in the accompanying list for use for libraries, and for Prizes in the High and Public Schools, and advise that such books be approved of by Your Honour."

The publishers referred to are George Bell & Sons, James Clarke & Co., Chatto & Windus, the Scottish Temperance League, Hogg & Co., Lockwood, Jarrold & Sons, the Christian Knowledge Society, Edmonston, Warde, Locke & Tyler, A. & C. Black, John F. Shaw, Cassell, Petter & Galpin, G. Routledge, Chapman & Hall, A. S. Barnes, Schermerhorn, J. R. Osgoode, Putnam, Virtue & Co., Smith, Elder & Co., Hodder, Scribner, W. Tegg, &c.—a long list of leading American and English booksellers.

In the *Journal* of July, 1877, page 101, there is another long list of books, and in the June number, at page 93, will be found the Regulations as recommended by me to the Governor in Council and approved of.

REGULATIONS RESPECTING THE AUTHORIZATION OF LIBRARY AND PRIZE BOOKS.

Approved by the Lieutenant-Governor in Council, 22nd June, 1877.

1. All books intended for Library or Prize Books, whether from the Depository or Booksellers, shall be submitted to the Central Committee for examination, and such books only as shall be approved of by them for Library or Prize Books shall be authorized.

2. The Central Committee shall meet, for examining books submitted, three times a year, viz., in January, April and October; or, should any other season be found more suitable, then, at such other times, as the Minister may direct.

3. The Committee will not, in future recommend for sanction any books which have merely the negative merit of being free from what is morally objectionable; but they will satisfy themselves as far as possible, that the books which they recommend are positively good; that they are such books, in fact, as it is desirable that school children and their parents and the community at large should have. The Department is laid under the responsibility of not encouraging the reading of all books morally unobjectionable, but should discriminate in favour of the better class of books.

4. In determining whether any book submitted for approval has sufficient merit to warrant the Committee in recommending it, there will be little difficulty in the following subjects, viz.: In Science, Mental and Physical; in Geography and History, in Criticism, in Poetry, in Theology and Religion. In case of works that give information of any kind, the Committee will readily decide what works are, and what works are not, suitable for prizes or for libraries. But as a very large portion of the prose Fiction published is trash, the Committee will not recommend any novel, or other fictitious narrative, unless it possesses decided merit.

5. The Members of the Central Committee are not expected to peruse every volume submitted, but only to gain such an acquaintance with the works on which they pass judgment as to be able to decide whether they deserve to be authorized.

6. Each member of the Central Committee is constituted a sub-Committee for the purpose of examining books; his report to be accepted, rejected or amended by the Committee. Each sub-committee shall submit in a special return the works of fiction which he proposes to recommend for authorization.

7. Due notice of the dates of the meetings of the Committee for the examination of Library and Prize Books shall be published for the information of publishers, booksellers and others, and no book shall be examined at any meeting unless it has been received before the meeting begins.

8. Publishers, Booksellers and others are required to take notice that the above Regulations as to the nature and quality of the books to be authorized will be rigidly enforced.

Here follows a long list of books authorized.

Then the next subject which brings the Department in certain relations to the book-sellers and publishers is the question of text-books for use in the Public and also in the High Schools. Most of my action and the action of the Government in reference to text-books is, just as will be found in regard to other matters, documentary in its character, and some of the documents explain, or assist in explaining more fully my own preliminary verbal explanations than anything else could do with the same satisfaction. What appears here was the result of careful consideration, and the conclusions, the final conclusions which were recommended by me to the Governor and approved of, will, of course, best explain the position at the present time. I may, however, mention that, so far as this question of text-books is concerned, it seemed always to have been a matter of extreme difficulty, and that the late Council of Public Instruction were not able to arrive at a policy which would govern this question of the introduction of text books for the future; and the great difficulty which the late Council of Public Instruction had, and which, when I took charge of the Department, I found was oppressing them, was as to whether the copyright should be secured for the Province, or whether it was possible by any other system to secure the two great objects of a text-book for the schools; firstly, that the text-book, in point of quality and utility as a text-book should be equal to the requirements of the schools, and the next question was as to the cheapness of the book; and of course under the question of cheapness would be involved the actual manner of its construction—the mechanical execution of it—that the book, if approved of as suitable for the schools, by the late Council of Public Instruction, would require to possess the two other requisites, that it should be satisfactory in point of mechanical execution, and should be sold to the schools at a fairly reasonable retail price. The Depository Branch of the Education Department had very little to do with the sale of text books. The production of text-books, so far as they were produced in this country, was left to the enterprise of the book-selling trade. There was no rebate in favour of trustees or purchasers as there was in regard to library and prize books. Whatever was the retail cost of a text-book, the trustees of the schools or parents of the children paid, without being entitled to any drawback, but trustees were of course confined to the text-books. One of the duties imposed by the Act was that the Council should regulate text-books, and trustees, masters and teachers have no right to use text-books in their schools unless they are authorized. I will refer to the Act on that point. In this same section 27 of the Act 37 Vic., cap. 27, sub-section 24, it is stated: "to examine and at its discretion recommend or disapprove of text-books for the use of schools, or books for school libraries and prizes."

And there are other provisions which make it improper for trustees to expend the funds of their school corporations, excepting for text-books properly authorized. I propose to show what the regulations in force were, when I took charge of the Department—regulations governing the production of text-books. I have a copy of the regulations in force when I took charge of the Department. These regulations in substance assume to offer to the publishers all the advantage of an exclusive right to vend a particular book for twelve months, and one of the conditions was that the copyright should be transferred to the Department. These are regulations in regard to the publication of authorized text-books adopted by the Council of Public Instruction in April, 1869. There were a series of twelve regulations, but some of them were subsequently repealed by the Council of Public Instruction. The first four are as follows:—

1. In regard to those Publishers and Printers who have transferred, or may hereafter transfer to the Chief Superintendant of Education, and to the control of the Council, the copyright of School Text Books which have been or may be approved and authorized by the Council, it is deemed right, and best for the encouragement of authors, and the maintenance of a proper standard in the mechanical execution of the books, that the Chief Superintendant of Education should not sanction or countenance, for at least twelve months after the authorization of such text books, the reprinting of them by any other than the party who has incurred the expense and responsibility of preparing and printing the first edition of such authorized School Text Books.

2. It is regarded by the Council as a duty in their acceptance of and subsequent action respecting the copyright of any book authorized by them to be used in the Public Schools, to

secure the interests of the public by the issue of a good and suitable edition at a reasonable price, and, at the same time, to provide, so far as they properly can, for the adequate remuneration of both Author or Editor and Publisher.

3. The interests of the Public are sufficiently secured by the existing arrangements, that no book or new edition shall be authorized by the Council without their previous examination and approval of matter, paper, typography, binding and price.

4. The interests of the Publisher are also sufficiently provided for by the arrangement that he shall have exclusive rights for at least one year.

Then the fifth provided that the publisher should pay the editor or author of any new or revised book, but that was subsequently abolished. Regulations 5, 6, 7 and 11 were suspended on the 31st March, 1873, and were afterwards cancelled. The policy of this regulation will be seen rather to have been directed to securing the copyright of any new books that might be required for use in the schools as text-books, and what was offered on the part of the Department, was an exclusive right to print, to the publisher who went to the expense of preparing the book and of paying the author, and so on. What was offered was the exclusive right to print it and vend it for twelve months, but after that it will be seen by the regulations that all book-sellers were entitled to come forward and ask the Department for the requisite liberty to publish these same books. The chief condition was that each publisher who was authorized in this way or to publish either a new or revised work had to enter into $2,000 bonds penalty. I began to consider the subject of text-books on the 4th March, 1876, and found these regulations, and that the following matters in connection with text-books had not been disposed of by the late Council of Public Instruction. These involved application to publish copyrighted books, and there were some questions about revising—for instance, some books that the Council of Public Instruction threw out inducements so as to secure under the regulations revised editions—Campbell's Geography, and I think Lovell's Canadian Geography. Then, the better way will be to bring into contrast what are the regulations now in force, as recommended by me, and then I will endeavour to explain what occurred in the interval to justify the conclusions which are embodied in the new regulations or, at all events, were matters of consideration before the new regulations were recommended by me and approved of by the Governor in Council. The final regulations as to text-books will be found in the Journal of Education of July, 1877.

General Regulations with respect to Authorized Text Books in the Public Schools.

Approved by the Lieutenant-Governor in Council.

1. From and after the 18th day of August next, the several text-books, hereinafter mentioned, shall constitute the only authorized text-books for use in the Public Schools in the respective subjects appearing in the Schedule A, annexed.

2. In order to secure the proper quality, and cheapness in price, of the several text-books so authorized, a sample copy of each published in Canada shall be fyled in the Department, and the retail price of the several books shall not exceed the price appearing in column 4 of the said Schedule A, and as to such books as are published in England or elsewhere, the edition shall be that appearing in the said Schedule.

3. The editions of authorized text-books which are published in England as mentioned in said Schedule, and whether copyrighted or not, are authorized for use in the Public Schools, when sold at a retail price not exceeding the price in cents also mentioned in the said Schedule.

4. In order that Trustees, Inspectors, and others, may readily ascertain that the text-books in use are duly authorized, each publisher or book-seller is required to stamp each volume on the title page to the effect that the book is authorized by the Department, and the retail price thereof. Any volume of a book otherwise authorized shall not be deemed to be duly authorized if such stamp is omitted therefrom.

5 Where a text-book heretofore authorized on any of the subjects mentioned in the Schedule has already been introduced into a School, and is in use, the teacher shall not substitute therefor any other authorized text-book, unless and until he shall have obtained the sanction of the Trustees, and the Public School Inspector to such change.

6. The Department may from time to time recommend such books as may be aids to teachers for study or reference by them, and it is not required that such should be authorized so long as they are not used as text-books by the pupils in the Schools. The books appearing in Schedule B annexed, are now recommended for use or reference by teachers, and it is expected that the retail price of books so recommended, will not exceed the price placed thereon in said Schedule B.

7. The Department reserves the right to remove from the list any book authorized or recommended, in respect of which the publisher or bookseller fails to observe any of the conditions prescribed by these regulations.

8. The use in the Public Schools of editions printed or published in the United States, of English or Canadian works hereby authorized, is prohibited, and such reprints shall in no sense be considered as authorized by the regulations.

9. In cases in which the copyright of the School text-books is in the Department, or the late Chief Superintendent on behalf of the late Council of Public Instruction, publishers and printers in the Province of Ontario may, upon application to the Department, obtain permission to print and publish editions of such work. Any such edition shall, in its binding, typography, paper, and other qualities, be equal at least to the standard copy of the Department, and the retail price thereof shall not exceed that placed thereon in the said Schedule A, and before permission to print or publish such edition is given, the publisher shall give security, himself in $2,000, and two sureties to be approved by the Minister, in $1,000 each, to secure that such edition when completed, shall be, including each separate copy, in accordance with the requirements of this regulation.

As to other books, there is nothing said as to the printing of them, but certain books are authorized as for high schools. The late Department of Public Instruction had not assumed to produce in Canada works for the high schools. The work which they endeavoured to encourage the production of in Canada had reference to public schools, and it will be seen from a list which I produced, what books had been copyrighted by the Department. Now, these regulations which are now in force, and under which it will be seen that certain books, the copyright of some of which is held by the Education Department, some by Adam Miller & Co., some by Campbell & Son, and some by Barber & Ellis, Rivingtons, Copp, Clark & Co., Macmillan, Longmans, and so on, appear in this Schedule. It will be seen that in the new regulations those text books, the copyright of which is held by the Department, can be purchased by any bookseller on application, subject to the regulations which were in force when I took charge of the Department. It appeared that the text books, some of them at least, in use in the public schools, were not acceptable to teachers as a whole, and in the next place that the programme of study was objected to by many teachers. In many of the counties there were some very strong expressions of opinion in connexion with the then existing programme of study. The two subjects appear to me to be such as having regard to the wants of the schools as expressed in most of the counties in the Province, were also subjects which required my consideration. I felt that one of the works left unfinished by the late Council of Public Instruction in regard to carrying out the authority which had been granted by the Legislature in 1876 authorizing them to revise several of the text books in use for the public schools—it would be very difficult to carry that authority out unless the whole question of the programme and obligatory subjects, and that of text books, were carefully considered. The proceedings which I took from time to time will give some indication of the chief points to be considered ; firstly, in reference to the programme of study, the optional subjects, some subjects being considered unnecessary, and certain other subjects being entirely optional, and the programme being made rather flexible in its nature so as to meet the difference in the wants of the different schools according to their circumstances, made it necessary to continue on the list some of the authorized text books ; but the next question which it became necessary to consider was, first, as to whether the existing text-books answered the wants of the schools ; and secondly, whether any substitutions could be introduced to make the work of the schools more satisfactory to the teachers and pupils, and my first inquiry was as to whether the policy of maintaining a copyright for all new books that were to be placed on the list would not be the best policy, inasmuch as it gave the Department the benefit of the fullest competition amongst booksellers so soon as the first year of exclusive right had expired ; but, however, these two difficulties had to be overcome, firstly, how could a new book on any subject be produced without

paying a compensation—a proper compensation—to the author? and, in the next place, where was that to come from, and how could a publisher receive his proper compensation? These were three points to be determined; and there was the further one as to the quality of the book which was likely to be the result of authorship under these circumstances. Then, there was a further point which had partially been dealt with by the late Council of Public Instruction. The production of excellent text-books has been going on with great activity in England since the Elementary School Act of 1870 was passed by the Imperial Parliament, and publishers—any number of respectable publishers—have been very active indeed in preparing text-books for the different schools in England. The text-books in every respect are there the result of voluntary effort, and in no sense are produced through the Education Department. Booksellers, enterprising booksellers, endeavour as far as they can, on the merits of their school books, to induce managers of schools to make use of them in their schools. Well, the result was, before I took charge of the Department, a Mr. Hamblin Smith had produced some good books on arithmetic; and had, as far as one could see, fulfilled a want which before had been felt in the public schools. The late Council of Public Instruction undertook to authorize this arithmetic, assuming that it assumed a Canadian form, and that the copyright of it was vested in the Department. So we will find on this list, in mathematics, the advanced arithmetic for Canadian schools, by Hamblin Smith and Archibald McMurchy, and these became text-books, and they have been retained in that kind of way. Then we have Hamblin Smith's arithmetic, the copyright of which was not obtained; and the correspondence on these points will show that there was considerable difficulty in bringing about the arrangement under which any books could be authorized as text-books in the Province of Ontario, unless the English publisher could in some way be arranged with. But that was not the only difficulty. The result of endeavouring to control the copyright in text-books by the Department, was on the very threshold a difficulty of settling upon the compensation to be paid to the English author or the English publisher, or any Canadian author who might be employed in revising the work for use in the schools of Ontario. There were difficulties, then, about carrying out what appeared to me to have been the best mode to secure economy in the publication of the book, so far as the pupils were concerned, namely, by the Education Department arranging to acquire the copyright; but the more that question was looked into, the more objections appeared to it: firstly, on financial grounds; and secondly, in regard to the quality of the work to be produced, and the difficulty of the Department assuming by its action to control what would naturally be the legitimate wants of the schools as resulting from actual experience of any particular text-book; and by that kind of general demand springing up from the schools themselves, it would be extremely difficult for the Department from time to time, by the utmost activity, to satisfactorily meet it. The schools on the one hand requiring improved text-books on any particular subject, and many of these being found already in use in England, and the difficulty of introducing these improved text-books into use here, on account of the financial questions connected with the securing of the copyright by the Department, were objections which met one, when it was necessary to determine that which stood *in limine*,—the question of securing the copyright of all books the Department might be called upon to authorize. Then, in the next place, the securing of the copyright appeared, in my judgment, to be only important as far as the schools themselves were concerned, not in regard to the quality of the book as a text-book, because, of course, no book could be authorized as a text-book unless approved of by the Department; so the question of the quality of the book as a text-book was not the one which was the material consideration on which to determine whether the securing of the copyright should be the one policy of the Department or not, but rather to prevent the monopoly on the part of one publisher as against another when it became injurious to the schools. The injury of a monopoly as far as the schools were concerned, appeared to me as likely to result in the pupils or their parents or the trustees paying a larger price for the text-book than it was reasonably worth. So my next step was to hope to meet that difficulty, and, after considering the whole subject, I found here, in January, 1876, a long list of text-books, authorized for use in the Public Schools, a few of them underscored, which I found to be those of which the copyright had been secured by the Department. In English there were four books of this kind; in Arithmetic, two out of four; in Geography and History, two out of six that were authorized. In Physical Science, a number were authorized, but the copyright was secured in none. In Miscellaneous, two—the "Dominion Accountant" and "First Lessons"—out of a long

list. I refer to these, merely to show that the policy of the late Council of Public Instruction had not gone so far as to require them, as a condition before authorization, to insist upon the copyright of any particular book being transferred to the Department. This list shows that the smaller number of the authorized text-books were only those in which the copyright had been secured by the Education Department. That also caused, perhaps, the most formidable objection, because, unless one had the copyright in all the text-books authorized by the Department, it was very difficult to carry out satisfactorily the one point that the school should be supplied with the cheapest possible books, that arising from the unfettered competition amongst booksellers, who, under the conditions prescribed by the Department would be at perfect liberty, from time to time, to publish editions as the different schools required the different kinds of text books. Before finally coming to a conclusion, I endeavoured individually to examine all the important questions bearing upon what would be a sound conclusion for me to adopt in order to revise the authorized text-books, and to settle the regulations for the future. Upon these points, I had all the information which the Department contains on the question. The subject has been discussed at great length, and from every possible point of view. I also had an opportunity of hearing the views of some of the booksellers on the subject, Messrs. Campbell & Sons, and, amongst others, I invited Mr. Warwick to give me his views on the subject. I have got them here in a communication of the 15th May, 1876. I also referred the subject, with a memorandum of my views, to the Central Committee, as the chief points for their consideration, and which at this time embodied some of the views which I had already formed for myself. This paper contains them. This was dated 25th April, 1877. It was a sort of memorandum I sent in to the Central Committee in order that I might have the benefit of their views. At this time it will be seen what my own views were on most of the essential points connected with the new regulations.

"TEXT-BOOKS FOR PUBLIC AND HIGH SCHOOLS.

"Considerations which are material with respect to the text-books for Public Schools may have no place as to those for High Schools. The subject is therefore considered separately :—I. as to Text-Books for use in the Public Schools.

1. "The Copyright should be held in all cases by the Department, and the maximum retail price fixed as a condition for liberty to publish.

2. "The list of necessary Text-books should be revised, so that the best books possible for the needs of the Public Schools in each subject of the course of study may be secured.

3. "To that end any book now authorized which does not satisfy the above, should be discontinued after a fixed period, within which a new work can be prepared.

4. "Where books whose copyright has not been secured, and now authorized, are to be retained, then I propose to require the copyright to be transferred on fair conditions.

5. "Where new books, on any subject, are found to be necessary, then authors will be invited to prepare such works for the Department, receiving as remuneration a certain fixed royalty estimated on a per centage of books sold by each publisher for a defined period of, say, seven years, after which to cease."

These are all views which, as I have mentioned, were mine after examination, and considering all these different questions, and they were submitted to the Central Committee in order that I might get the benefit of an interchange of views on this subject in this form.

6. "To avoid any imputation of partiality, it is intended to *exclude all officials in the Department of the Minister, and members of the Central Committee, from being* in any way concerned in the preparation of new books, or interested in works which may be retained.

7. "The Central Committee is requested to consider and report upon a list of *works with maximum retail price* to carry out the above suggestion. I have not as yet seen any history or geography of Canada which meets the wants of the Public Schools in this respect. Clearness and conciseness, with proper order and arrangements, are requisites. The present works are overloaded with minute and unimportant details.

II.—AS TO HIGH SCHOOL TEXT-BOOKS.

1. "The Department can sufficiently control the nature, quality, and price of these books without the necessity of acquiring the copyright.

2. "The Central Committee is requested to consider and report upon a complete list of books, with *maximum retail prices, which may serve the requirements of the High School in the different subjects of study for the period of* say, five years, in order that they may be authorized or continued subject to the conditions indicated.

3. "It would be well also that no officials in the Department of the Minister or members of the Central Committee should be interested in any way in the books so authorized or to be authorized.

"ADAM CROOKS,
"*Minister of Education.*

"Education Department, Toronto, 25th April, 1877.

"NOTE.—The suggestions of the Committee of the 8th February, 1877, on the above subjects are herewith submitted, in order that they may be incorporated (as far as may be) in preparing a complete list of Text-Books (Public and High Schools for the future).

"ADAM CROOKS."

I have not the Report of the Central Committee upon that. Then I met them and discussed some of these matters at a personal interview, and we all came to the conclusion that the policy which I mention there, of securing the copyright in the Department for all text-books in the Public Schools, was hopeless, it was impracticable, and we had to be content with something else; that, if the publishers who controlled in Canada the copyright of editions of English books, would confine themselves to a sale of those books at a maximum retail price, any difficulty in approving and sanctioning those text-books for the Public Schools could be overcome; and, so far as English or American editions were concerned, that the Department could sufficiently secure economy in price, so far as they were concerned, by making it one of the conditions of the authorization that the maximum retail price did not exceed a certain sum. After full conference with the Central Committee, I corresponded—and, I may say that, as far as regards the actual text-books afterwards adopted, I relied almost altogether on the judgment of the Central Committee. There were many, of course, about which there could be no difference of opinion. In regard to such text-books as were already in use in the schools, and had been found satisfactory, there could be found no difficulty in coming to a conclusion. But, in regard to the new books which were required, as one found the different schools expressed their wants on these subjects, I was guided mainly by the recommendations of the Central Committee in reference to such text-books. But before coming to a decided conclusion to adopt the regulations you have now, I corresponded with some of the Canadian publishers who controlled the copyright of some of the proposed books, and my letters are almost of the same tenor, but they will show what was proposed. These letters are dated the 18th May, 1877. There is one to Copp, Clark & Co., another to James Campbell & Son, and another to Adam Miller & Co. Mr. Warwick was not in the position. He had not secured the copyright of any of the proposed new text-books; and Mr. Lovell had only the control, I think, of Lovell's Geography and Canadian History; and there was some correspondence between him and the Department as to revised editions, which arose when the late Council of Public Instruction had charge of the Department; but, as regards the text-books which were being introduced as authorized text-books, the copyright of which was held in Ontario, these three letters were written, as these were the only three firms who controlled them. The following is the letter to Copp, Clarke & Co.:—

EDUCATION DEPARTMENT, (ONT.),
Toronto, 18th May, 1877.

GENTLEMEN,—In considering the question of authorizing certain text-books for use in the Public Schools, I have under consideration the works mentioned in the accompanying Schedule, published by your firm. In order to protect these schools against paying too high a price, I propose, as the governing retail price, the figures placed opposite each work in the Schedule. I also propose that when a book is authorized, each copy shall be stamped on the title-page with the publisher's name and the price, before it can be considered as

authorized for use in Public Schools. In this way, with the co-operation of publishers, attempts to introduce unauthorized books can easily be detected.

I have therefore now to propose that the books mentioned in the Schedule be authorized, if your firm will agree to the above, and also to enter into a formal agreement for that purpose; and that the future editions shall correspond with the sample copy to be placed in the Department.

With reference to "Louden's Algebra for Beginners," and the "Elements of Algebra," the latter should be published without the part relating to "Determinants."

I am, etc.,

ADAM CROOKS,
Minister of Education.

Messrs. Copp, Clark & Co.,
Publishers, etc., Toronto.

SCHEDULE OF AUTHORIZED TEXT BOOKS.

Name of Book.	Where Copyrighted.	By Whom.	Price retail.
Louden's Elements of Algebra	Canada.	.....	$00 75
Louden's Algebra for beginners	"	Copp, Clark & Co.	00 50
Todhunter's Elements of Algebra	"	"	00 60
Todhunter's Elements of Geometry	"	"	00 90

The following is the letter to Adam Miller & Co. :—

EDUCATION DEPARTMENT, (ONTARIO),
TORONTO, 18th May, 1877.

GENTLEMEN,—In considering the question of authorizing certain text books for use in the Public Schools, I have under consideration the works mentioned in the accompanying Schedule published by your firm in order to protect the schools against paying too high a price. I propose, as the governing price, the figures placed opposite each work in the schedule, I also propose that when a book is authorized each copy shall be stamped on the title page with the publishers' name and the price, before it can be considered as authorized for use in the Public Schools. In this way, with the co-operation of publishers, attempts to introduce unauthorized books can easily be detected. I have therefore now to propose that the books mentioned in the schedule be authorized, if your firm will agree to the above, and also to enter into a formal document for that purpose, and that the future editions shall correspond with the sample copy to be placed in the Department.

With reference to Hamblin Smith's Arithmetic, any authorization would be conditional on its being adapted to Canadian Schools and brought up to the present time.

I am &c.,

ADAM CROOKS,
Minister of Education.

Messrs. Adam Miller & Co.,
Publishers &c., Toronto.

SCHEDULE OF AUTHORIZED TEXT-BOOKS.

Name of Book.	Where Copyrighted.	By Whom.	Price (Retail.)
Fleming's Analysis of English Language	Canada	A. Miller	$1 00
Hamblin Smith's Arithmetic	"	"	1 00
Beatty & Clare's Book-keeping	"	"	0 70
Pott's Geometry	"	"	0 75
Hamblin Smith's El. Statics	"	"	0 90
Hamblin Smith's Hydrostatics	"	"	0 75
Kirkland's Statics	"	"	1 00
Lervis' " How to Read."	"	"	0 75

The following is the letter to James Campbell & Son :—

EDUCATION DEPARTMENT, (ONT.)
TORONTO, 18th May, 1877.

GENTLEMEN,—In considering the question of authorizing certain text-books for use in the Public Schools, I have under consideration the works mentioned in the accompanying Schedule, published by your firm. In order to protect the schools against paying too high a price, I propose, as the governing retail price, the figures placed opposite each work in the Schedule. I also propose that when a book is authorized, each copy shall be stamped on the title page with the publisher's name, and the price, before it can be considered as authorized for use in the Public Schools. In this way, with the co-operation of publishers, attempts to introduce unauthorized books can easily be detected. I have therefore to propose that the books mentioned in the Schedule be authorized, if your firm will agree to the above, and also to enter into a formal document for that purpose, and that the future editions shall correspond with the sample copy to be placed in the Department.

I have, &c.,

ADAM CROOKS,
Minister of Education.

Messrs. James Campbell & Son,
Publishers, &c., Toronto.

SCHEDULE OF AUTHORIZED TEXT-BOOKS.

Name of Book.	Where Copyrighted.	By whom.	Price (Retail.)
Campbell's Geography	Canada	Campbell & Son	$0 75
Morris's English Grammar	"	"	0 25
Roscoe's Chemistry (Primer)	"	"	0 30

The replies of the different publishers are here.

Then in connection with what was ultimately concluded upon, I find that I required the following information to be obtained by the Secretary of the Department :—

"*Public School Text-Books.*

"Mr. Marling will please give me the names of the booksellers or publishers in Toronto, who are selling or publishing the following list of text-books." Then follows the list of text-

books in regard to which information is required. I also asked for information in regard to another list of books which were then authorized ; but of which the copyright had not been secured.

This was a requisition from me, answered by the Secretary of the Department, as to the Canadian publishers who had anything to do with selling in Toronto, the English publications which were proposed to be introduced as our authorized text-books. I find here an explanatory memorandum on a point I have already offered some explanations upon : that is, in regard to the position of the copyright of text-books that had been authorized by the late Council of Public Instruction. It is a very full memorandum, from Mr. Marling, the Secretary of the Department. It sets forth what was done in the matter of copyright, and the position in which the late Council of Public Instruction left it. As it is material, and will throw some light upon the present state of things, I will read it.

Public School Text-Book.

(Original publisher underlined).

Mason's English Grammar, *Bell & Sons*, London, Eng.
Fleming's Analysis of the English Language, A. Miller & Co., Campbell & Son, and *Longmans.*
Abbott's "How to Parse," Campbell & Son, and *Macmillan.*
Swinton's Language Lessons and Progressive Grammar, *Harper Bros.*, New York.

Mathematics.

Hamblin Smith's Arithmetic, A. Miller and *Rivington.*
Beatty & Clare's Book-keeping, *A. Miller.*
Merrifield's Technical Arithmetic, *Longmans,*
Hamblin Smith's Elementary Algebra, *Rivington.*
Louden's Algebra, Copp, Clark & Co., and *Collins.*

Geography and History.

Campbell's Geography, *Campbell & Son.*
Calkin's do *Mackinlay*, Halifax.
History of England, Edith Thompson's, *Macmillan.*
Green's Short History of the English People, Macmillan, *Harper.*

Physical Science.

Oliver on Elementary Botany, *Macmillan.*
Catherine M. Buckton on Hygiene, *Longmans.*
Magnus' First Lessons in Mechanics, *Longmans.*
Twisden's Elementary Principles of Mechanics, *Longmans.*
Goodeve's Principles of Mechanics, *Longmans.*

Miscellaneous.

Drawing Manuals, by Walter Smith. Osgoode & Co., Boston.

The following is the list of the text-books, of which the copyright is not held by the Department :—

English.

English Grammar, Morris, Campbell & Son, *Macmillan.*

Mathematics.

Elements of Algebra, Todhunter, Copp, Clark & Co., *Macmillan.*

Euclid's Elements of Geometry, Potts' or Todhunter's. Potts', A. Miller, and *Longmans;* Todhunter's, Copp, Clark & Co., and *Macmillan.*

History.

Freeman's European History, *Macmillan.*

Physical Science.

"How Plants Grow," Copp, Clark & Co., Ivison, Blakeman & Co., New York.
Elementary Statics, by Hamblin Smith. A. Miller, *Rivingtons.*
Elementary Hydrostatics, by Hamblin Smith. A. Miller, *Rivingtons.*
Elementary Physiology, by Huxley. *Macmillan.*
Physical Geography, by Geikie. Campbell & Son, *Macmillan.*
" " by D. Page. *W. Blackwood.*
Chemistry, Roscoe, Primer. *Macmillan,* Harper, Campbell, Miller.
" " Elementary Lessons. Macmillan, Copp, Clark & Co.
Agriculture, Ryerson. Copp, Clark & Co.

And the sum of $1,000 was provided in the Estimates of 1876 for that purpose. Then this is material, because it throws light upon how far, as a practical question, this mode of procuring copyright for the Department had worked for the past and was likely to work in the future. In the *Journal* will be found a very full statement of the difficulties which occurred in regard to these Readers. The Readers of course have a very large sale, and are the most used of all the text-books, and the copyright was secured to the Department, but they required the two publishers to come forward and remunerate the editors who revised these Readers. The late Council of Public Instruction assumed to throw upon the publishers the burden of settling with the authors of these revised Readers. Mr. Campbell, under an arbitration which was provided for, was called upon to pay $3,000. Mr. Warwick, to secure the like privilege, is called upon to pay $1,500; and, upon Mr. Warwick's complaint, the whole subject was investigated by me; and in the investigation of Mr. Warwick's complaint, I became very sensible of the difficulty of in any way providing by a proper fund for that remuneration of the author for that which would in the end become the property of the province if the copyright of the text-book was surrendered; and in the *Journal* of March, 1877, there is a full memorandum in relation to this question. I refer to it as showing very plainly some of the practical difficulties there were in dealing with this question of copyright. In the *Journal* of March, 1877, the whole question under which difficulties arose out of the control even of the copyright of these Canadian Readers, as investigated by me, is stated at page 36.

MEMORANDUM RESPECTING THE "CANADIAN NATIONAL SERIES OF READING BOOKS," AND MR. WARWICK.

"1. Mr. Warwick, in his letter of the 22nd March, 1877, complains that the late Council of Public Instruction authorized Mr. Lovell, in February, 1875, to print this series on the same terms as other publishers.

"2. The Regulations on this subject which were then in force, are the 1st, 2nd, 3rd, 4th, 8th, 9th, 10th, and 12th, of those adopted in April, 1869; and the 5th, 6th, 7th, and 11th, which provided for the payment of the author or editor, and the re-compment of or contribution by different publishers of sums so paid, were suspended on the 31st March, 1873; and on the 16th December, 1873, formally cancelled, as appears by resolutions of the Council of Public Instruction to that effect.

"3. On the 23rd September, 1867, the copyright in this series was, by a legal instrument, transferred by Messrs. James Campbell & Son, and others, and became vested in the Chief Superintendent of Education on behalf of this Province.

"4. On the 31st January, 1871, by the award declared in the reference between Messrs. Campbell & Son, and the Chief Superintendent, under the regulations of April, 1869, as they then existed, Messrs. Campbell & Son were directed to pay, and did pay, the sum of $1,500 as in the award mentioned, to the editors of the revised edition of this series, as one of the

conditions on which Messrs. Campbell & Son were authorized to print and publish such revised edition. The letter of one of the arbitrators (dated 24th March, 1871), which accompanied the award, states, "as under these (*i.e.*, Regulations), each publisher was to pay the same amount, the compensation to the authors was reduced one-half in Messrs. Campbell's case.

"5. On the 28th of June, 1871, Mr. Warwick, by his bond (with sureties), became bound to the Chief Superintendent to fulfil the conditions of the Regulations as they then stood (a copy being annexed to his bond), on receiving permission to print and publish this revised edition; and Mr. Warwick complied with these regulations, and paid the like sum of $1,500 as his proportion of the compensation payable to the editor.

"6. On the 2nd February, 1875, permission was next granted by the Council of Public Instruction to Mr. John Lovell, 'to print the series of five Readers, and the Spelling book, or Companion to the Readers, upon the same conditions as other publishers.' This permission does not appear to have been acted upon, nor have the conditions been fulfilled.

"7. Mr. Warwick, on hearing of this permission to Mr. Lovell, by letter, dated 22nd February, 1875, reminded the Chief Superintendent that Messrs. Campbell and himself had to pay $1,500 each to the editor of this series, with the understanding (alleged in this letter), that in case any other person published them, Messrs. Campbell and himself should either receive back their proportion of the amounts so paid, or the new publisher should pay the like sum to the editor; and Mr. Warwick submitted that if this was not carried out, he would suffer very great loss.

"8. A Special Committee of the Council of Public Instruction thereupon undertook the consideration of the question, and reported thereon to the Council on the 7th July, 1875, by whom the report was adopted. The Committee in their Report stated that "the Regulations are not explicit on the point; but they are of opinion that Messrs. Campbell and Warwick's right to contribution from the competitors, if they had such right, was confined to the first year of publication; and that after that period the Council might grant permission to others without any payment whatever, if they thought fit. Your Committee have no doubt whatever that Messrs. Campbell and Warwick have no legal claim for contribution; and they are of opinion that under all the circumstances, and especially considering the long monopoly these gentlemen have had, justice does not require the Council to exact any payment from the parties now desiring permission to publish.

"9. Mr. Warwick, in his letter to me of the 22nd instant, complains that he was unjustly treated, and submits the grounds on which he contends a different conclusion should have been arrived at by the late Council of Public Instruction. He objects (1) that he was not heard in support of the actual agreement made; (2) that any consideration, profit, or loss, cannot determine the true agreement; and (3) the Council of Public Instruction should not by its own resolution, and without his being heard, have assumed to alter to his prejudice the Regulations of April, 1869.

"10. The Council of Public Instruction, and Messrs. Campbell and Warwick, were reciprocally bound under this state of facts by a complete contract, the terms of which are contained in the Regulations of April, 1869, so far as they are to be fulfilled by the Council of Public Instruction, and by the respective bonds of Messrs. Campbell and Warwick on their parts, no evidence of any verbal understanding with any members of the Council would be admissible to vary the contract as thus ascertained. Messrs. Campbell and Warwick, by paying the sum of $3,000 to the editor of this revised series, as the full remuneration awarded, acquired for at least twelve months the exclusive right of printing the series, and no other publisher could have obtained permission to print during that period. I think that the regulations are quite explicit on this point; and that by the payment of $3,000, Messrs. Campbell and Warwick only acquired these exclusive rights for one year; and to that extent only was the Council of Public Instruction, as the owner of the copyright, restricted in their full right of sanctioning the printing and publishing as they pleased. No. 4 of the regulations removes all ground for a different contention. It declares that the interests of the publisher (who is called upon to pay the editor's remuneration) is sufficiently provided for, in having this exclusive right for one year at least.

"11. In this view of the true agreement between the parties, the Council of Public Instruction were at full liberty, without reference to Messrs. Campbell and Warwick, and without any just cause of complaint on their part, to authorize Mr. Lovell or other pub-

lishers to print from the editions of their series on such conditions as the Council thought fit.

"I am unable, therefore, to recommend to His Honour the Lieutenant-Governor in Council, that any action should be taken on Mr. Warwick's communication."

This shows that on the first question of the copyright of the Canadian series, the Council of Public Instruction was compelled to secure $3,000 from the two publishers, to compensate the authors of that revised edition; and that Mr. Lovell obtained permission to publish a few years afterwards, and that was granted without his being placed under any terms to recoup Campbell and Warwick the $3,000 they had paid together for the permission to publish these editions. This plainly showed me that there would be always a difficulty in determining this question as to how far a royalty or compensation to authors from time to time, should be paid, even assuming that the Province was prepared to have adopted a new policy, which has not prevailed as yet, of placing an appropriation in the estimates to cover the necessary outlay which would be involved in the production or revision of text-books. One thousand dollars was for the first time placed in the estimates of 1876, to secure the revision of some of them,—the history and the geography. The reports of the Central Committee on the subject of text-books, are all here; and there is no further material circumstance to be placed before the Commissioner upon this subject of text-books, excepting that there are two points which arose before the regulations were finally settled. Information was conveyed to me by the Secretary of the Department, that Mason's English Grammar itself, being considered as a proper text-book, the copyright of that was then held in England by the English publishers. The information which was incidentally mentioned to me on that subject, in answer to the requisition I made on the Secretary which had reference to the different publishers who controlled the copyright in England or Canada of these new text-books, was that the copyright of Mason's Grammar was still controlled in England; but before the text-books were finally settled, before my recommendation went in to the Lieutenant-Governor on the subject, I understood that it was a book that Adam Miller had secured, or was securing, the copyright of; and my reply to that was, that under the policy of the new regulations it made no difference to the Department whether Adam Miller & Co, or any other publisher, chose to secure the Canadian copyright of an English book which, as an English edition, would appear as an authorized one under our new regulations. The question of controlling the copyright had been finally determined on, and my conclusion was, that any efforts to control the copyright would be ineffectual; and it was a matter of importance, no doubt, to booksellers, as to which of them did secure the Canadian copyright of Canadian editions; and that the interests of the schools would, under the new regulations, be sufficiently guarded without reference to a question of this kind, which had relation to booksellers engaged in the same trade amongst themselves, and had no relation whatever to the duty the Department was, in my judgment, called upon to assume. The other point is in reference to the relation of members of the Central Committee, or other officials of the Department, in reference to the production of text-books. My memorandum to the Central Committee is explicit upon that point, but something came from Copp, Clark & Company which directed my attention to a complaint as to the existence of an arithmetic, edited by Mr. Kirkland and Dr. McLellan. The letter of Copp, Clark & Co., and my reply, show what the position of the Department was, upon an express point brought under my attention when these text-books were being considered. On the 11th May, while all these matters were under consideration, Copp, Clark & Co. wrote to me as follows:—

TORONTO, May 11th.

Hon. Adam Crooks, Minister of Education:

DEAR SIR,—As the publishers of the authorized arithmetics, we beg most respectfully to draw your attention to a work just issued, of which one of the Inspectors, Dr. McLellan, is joint author, "Examination Questions in Arithmetic," in which announcement is made and commendation given to an arithmetic to be published, thus throwing official sanction over an unauthorized book, in direct opposition to one of the duties of an Inspector. The fact of Mr. McLellan, an examiner, having a permanent pecuniary interest in any book, the certain result of which must be to induce him to use influence to promote its sale, is, we submit, incompatible

with the proper discharge of his duties, and a position which we think you will view with disfavour. Respectfully submitting this matter to your consideration,

We remain,
Your obedient servants,
COPP, CLARK & Co.

This was the reply :—

EDUCATION DEPARTMENT (ONT.),
TORONTO, 21st May, 1877.

DEAR SIRS,—I am in receipt of your letter of 11th instant, and delayed a definite answer until I had an opportunity of considering this question amongst others, on the subject of authorized text-books in the Public and High Schools. I have drawn a line between the text-books properly so called for use of pupils in the schools, and such books as teachers may think proper to use on their own account, either for study or for improving themselves as teachers, whether recommended by the Department or not. The latter class of books do not come within the authority of the Department at all, the authority of the Department being confined solely to text-books as mentioned, which are either purchased by the Trustees or pupils themselves for actual use in either the Public or High Schools. I propose rather to encourage such books as you refer to, for use of teachers; but you will see that there is a clear distinction, as I have drawn it, between such books as are required to be authorized by the Department, and those which are not. There is no incompatibility in Dr. McLellan or the other inspectors becoming the author of other books in aid of teachers while acting as Inspectors, or as one of the Committee of Examiners. Whether such a work conflicts with your copyright or not, is for you to determine; and it can only be in reference to that question that your letter could have been written, inasmuch as you have nothing to do with what I conceive to be my own responsibility in the discharge of my duties, or in reference to the discharge of the duties of any Inspectors or other officials of the Department.

I have, etc.,
ADAM CROOKS,
Minister of Education.

Messrs. Copp, Clark & Co.,
Publishers, etc., City.

This was replied to as follows:—

TORONTO, 26th May, 1877.

Hon. Adam Crooks, Minister of Education.

DEAR SIR,—We have the honour to acknowledge your favour of 21st inst., in reply to ours of the 11th inst., respecting unauthorized text-books. We had no idea of asking you to interfere in any way with books which teachers might wish to purchase for their own use, but it did appear to us that for an examiner and inspector to publish a book, and retain a living pecuniary interest in it, must have a certain result; and when he further announces that another book, a scholars' book, on the same subject, is about to be published, it looks very much like an intimation to teachers that they will be at liberty to use such book in their schools. However, having laid the matter before you, as we felt it right to do in the interest of the authors and ourselves, and assuring you that we had not the remotest idea of what the latter clauses of your letter appear to suggest,

We remain,
Yours most respectfully,
COPP, CLARK & Co.

The same subject was brought before me by Messrs. Campbell & Son. This is the memorandum as to certain books which Mr. McLellan's name, and also Mr. Kirkland's appeared upon :—

"MEMORANDA.—Mr. McLellan, Inspector; Mr. Kirkland, Normal School, joint editors of 'Examination Papers in Arithmetic.'

"Mr. Kirkland, author of new school book on Statics.

"Mason's Grammar, not yet authorized, is ready for delivery as soon as sanctioned. Swinton's Grammar, an American book, not yet authorized, has been edited by Mr. ———, Ottawa, supposed to be Mr. Glashen, and is ready for delivery as soon as sanctioned.

"JAMES CAMPBELL & SON."

This was an intimation from Messrs. Campbell that these books either had been prepared or were in course of preparation. I explained in answer to his objections, just as I explained in writing to Messrs. Copp, Clark & Co., that provided that any book, the responsibility of which any person undertook to purchase, was not a book which was authorized or was required to be authorized for use in the Public Schools, the Department had nothing to do with interfering with their publication. That appears very clearly in my letter to Copp, Clark & Company. The only possible difficulty that appeared to me to arise in regard to Mr. Kirkland or Dr. McLellan having an interest in subjects to be taught in the Public Schools was this. As far as Mr. Kirkland was concerned, I would have been assuming to have initiated a practice which does not prevail, and has not prevailed anywhere that I am aware, that a teacher in any school is proscribed from publishing any work he has the ability to publish. It is rather the other way. It is from such quarters that we have to expect, and especially in Canada, where the probable authors of School text-books are few, it is rather from the direction of these gentlemen who are engaged in the actual work of education that we are to look for the publication of certain educational works. The line that I drew in my memorandum seemed to me to be a plain intelligible one which, on the one hand, secured the Department from any charge of exercising the two duties of revising or sanctioning text-books and preparing them, and that view of it had no reference at all to Mr. Kirkland, who is only a master, the Science Master, in the Normal School, and has not been called upon and could not in the nature of things be called upon to offer any advice at all upon these questions of text-books. At all events, the work that Mr. Kirkland was concerned with Mr. McLellan in preparing, was not a text-book, or authorized as such, or intended to be used as such, but solely one for the information of teachers and others, which can be used or not by the parties as they think there would be advantage in using it, as far as Dr. McLellan is concerned.

Mr. Davin.—Is it quite right for Mr. Crooks to argue this question?

The Commissioner.—I do not know how far he is going. We are at present receiving a statement of the views of the Minister.

The Witness.—At all events, I considered the question as to the alleged impropriety of Dr. McLellan, an Inspector, being concerned in authorship of these works, and my conclusion was, that the Department had nothing to do with anything except text-books, and I could not impose any restriction upon anything Mr. McLellan saw fit to do in other respects which did not come within his position as member of the Central Committee of Examiners. I have the proceedings of the Department in regard to the discontinuance of the *Journal of Education* and the approval of the *Canada School Journal*. The question of the continuance of the *Journal of Education* was considered by me in March, 1876, when I came to the conclusion, as appears at page 48 of the *Journal of Education*, 1876, to continue it. My memorandum is this :—

THE JOURNAL OF EDUCATION FOR ONTARIO.

It is proposed that *The Journal* be continued as a publication for the following objects :—

1. Departmental notices and proceedings.
2. Regulations of the Education Department and Orders in Council respecting Educational matters.
3. Explanatory papers for the information of Inspectors, Masters and Teachers.
4. Legal decisions on Educational points.
5. Proceedings of Teachers' Institutes, Associations and Conventions.
6. Matters connected with Local administration.
7. Communications (See Notice).
8. Extracts from periodicals, &c., upon Educational subjects.

9. Acknowledgment of books.

10. Advertisements on Educational subjects will be inserted in *The Journal*.

The *Journal* was continued on throughout the whole of 1876, and part of 1877. It was late in the month of May, 1877, when I found on my desk a copy of this new journal—the *Canada School Journal*—and I looked to see under what authority, under what auspices it was being published. I formed my own conclusions on the subject, and incidentally mentioned to other members of the Government, that there would be an opportunity now of my discontinuing the *Journal of Education*, because I found that individual enterprise had produced this new educational journal; but my conclusion was formed from the circumstance that, in considering the question of the continuance of the *Journal of Education* before, I came to the conclusion that, inasmuch as there was no special journal devoted to Educational subjects, the necessity of maintaining one at the expense of the Province still existed; that, assuming that a special journal did come into existence through private enterprise, then the *raison d'être* for the continuance of the *Journal of Education* would disappear. That was my conclusion from the very beginning, so, when I saw the *Canada School Journal*, I formed my own conclusions, and acted quite independent of any reference to any single person on the subject. So, as soon as I saw the *Canada School Journal*, I was quite convinced that the explanations I had offered to the House for the continuance of the *Journal of Education* in 1877, were removed. There is usually, and there was in 1877, a discussion upon the item for the expenditure for the *Journal of Education*, and my deduction was, that there was still a necessity for its continuance, inasmuch as there was no proper medium for communicating on school matters with teachers and trustees and others on the subject of education. So, when this appeared upon my table, I was at once satisfied that the time had come when the *Journal of Education* could, in my judgment, be satisfactorily dispensed with. I drew up a formal memorandum, after some communications with Adam Miller & Co., in which I asked for information as to the terms upon which the Department could utilize the columns of the new journal for departmental notices and so on. A formal recommendation to the Governor in Council will, perhaps, explain best what were my conclusions. The memorandum is signed by Mr. Hardy, Pro-Minister, and dated 19th July, 1877, but it is my own memorandum. There was some delay in drawing up the Order in Council, but what Mr. Hardy signed I had prepared in an early period in June, and this states my own views as to the propriety of discontinuing the *Journal of Education*, and adopting instead for these special purposes the *Canada School Journal*.

The undersigned respectfully reports to His Honour the Lieutenant-Governor in Council respecting the Education Department as follows:—

"The publication of the *Canada School Journal* by Messrs. Adam Miller & Co., with an editorial staff, and of contributors composed of many who take the lead in Educational work in the Province, has brought under consideration the question of the continuance of the *Journal of Education*. In a former report to your Honour in Council on this subject, the Minister recommended the continuance of the publication of the *Journal* in order to supply information as to the action of the Department to Inspectors, Trustees, Teachers, and others, which information required a special journal for the purpose. Now, that such a journal does exist in the *Canada School Journal*, whose success should be aided by the Department, and not imperilled by the competition of the *Journal of Education* circulated gratuitously, the undersigned respectfully recommends that the arrangements proposed to be made by the undersigned with the publishers, be approved of by your Honour in Council, such arrangements being, that the publishers shall be paid fifty dollars per month, and that in consideration of this sum should furnish the Department with two hundred and fifty copies of the *Journal* for distribution to Inspectors and others, as also, such space as the Department may from time to time require for the publication of Departmental matter, and that such arrangement be revocable at the pleasure of the Government.

"Respectfully submitted,

"(Signed) ARTHUR S. HARDY,

"*Pro-Minister of Education.*"

These are the subjects to which I desired to refer—the constitution of the Central Committee, the relations of the booksellers in regard to library and prize-books and text-

books, and the change of the *Journal of Education*. I have a number of documents which will throw light upon these subjects, but I have assumed merely to refer to such as would allow counsel on either side to lay a foundation for cross-examination if they should desire.

Cross-examined by Mr. Davin : —

Q. When did you become Minister of Education? A. I think I was gazetted on the 19th February, 1876. I do not think I took charge until a week later probably.

Q. The Central Committee is under your supervision entirely and appointed by you? A. It is appointed by the Governor-in-Council. You will recollect that under the former Act the functions of the Council of Public Instruction were assigned to the Governor-in-Council, to the Department.

Q. At the present moment, the Committee are appointed by the Governor, on your advice, I suppose? A. On my recommendation.

Q. What are their functions? A. Their chief and principal functions are to carry out the directions of the law which requires the Department, through a committee of examiners, to prepare questions for the examination of Public School Teachers, and also for the examination of candidates for admission to the High Schools, and in relation to the intermediate examinations.

Q. Do they ever report to you? A. It is their duty to report to me. They can do nothing of themselves, excepting to prepare the examination questions and to look over the answers to those questions.

Q. They have reported to you, have they, several times? A. There are a great number of reports on a variety of subjects which I have received from them.

Q. You have seen the charges which led to this enquiry, in the newspaper? A. Yes, on my return from England. I was not present in this country when they were made.

Q. Who first spoke to you about them? A. I read them in the newspaper first.

Q. Did anybody make any complaints to you as to these charges? A. I was absent in England during the whole of July and August, and sailed from England on the 6th September, so I probably got back on the 15th September.

Q. But before you went to England, did you have any interview with any one in regard to such charges, and did any one make complaints to you? A. You mean with reference to the relations of the Department to the booksellers?

Q. No, in connection with the second charge in regard to collusion between examiners and teachers? A. Well, I got some letters coming from one person in which he made a series of charges against one of the Inspectors especially.

Q. Did you take any action then? A. I wrote back a letter to say that I did not intend to pay the slightest attention to such charges—that was my answer.

Q. Was there any change made in the system of taking the examination as a consequence of that? A. These particular letters, coming from that particular individual did not influence my conduct in one iota.

Q. Was there any change made in the system of taking the examination about that time? A. I really considered that these letters had not the slightest influence on my judgment either in reference to my action or the way in which I regarded the two Inspectors referred to in that letter.

Q. But was there a change made in the system of taking examinations at that time? A. I have not the slightest recollection of any connection between the two. These letters arose out of a personal interview I had with the writer when I was attending a meeting of the teachers in the east, and my object was to let these gentlemen know there would be no favouritism and partiality in the Department.

Q. Was there no safeguard resorted to in the system of making examinations? A. Not in consequence of anything that passed.

Q. Was there such a change at that time? A. I can state from my agenda book.

Q. Was there a change made in the system of taking examinations at that time? A. There was this particular matter of what are called the Intermediate Examinations in the High Schools. They were new, and I suppose it is in reference to the intermediate examinations in High Schools that the information is sought, because the particular person is a High School master.

Q. Was there a change made at that time? A. There have been a series of changes arising out of what experience has shown and convinced me were necessary to be made. The

first amendment which I proposed was, that in regard to the identity or the means of identifying the particular school, or the pupil of a particular school with any answer to any given question in regard to the intermediate examinations. I suggested the means of preventing the possibility of any of the examiners in the intermediate examination knowing from what High School any answer came. I have a memorandum of it here.

Q. The system of examination by numbers was adopted? A. Yes, we are both referring to the very same point. I had myself personally been aware of that system. My attention as Minister of Education was expressly called to it by Mr. Seath, the head master of the High School at St. Catharines. I am not sure, whether verbally, I had not conversation with some other High School masters, and at once the suggestion was made, and the system of examination has been carried on ever since under it.

Q. That was with the view of protecting certain masters through the country from what they deemed injustice? A. Not exactly, but it has been a cardinal principle with me in examinations, as far as possible, to dissociate the examiner, whose duty it is to examine the questions, from any influence whatever of any kind or description, and I was personally aware that, in applying these new regulations as to intermediate examinations to the High Schools, there would be more or less of friction in it. The regulations were those of the late Council of Public Instruction, and had been only in operation about a year when I took charge of the Department, and it became my duty to report on them for the approval of the Governor-in-Council. There was this difficulty, because there was the question of placing too much power in the hands of examiners, and that these examiners might or might not have partial views, might or might not, like all examiners, be subject, not to improper influences, but to that sort of influence which all men, more or less, are under.

Q. Did you make this change in consequence of some complaints that you heard? A. No, not in consequence of any complaints, but in consequence of this having been pointed out to me as a proper way of protecting one High School against any partiality on the part of the examiner.

Q. The person who pointed it out must have complained to you of some defect in the present system? A. Not to my recollection. Mr. Seath did not appear to me to approach the subject as having any actual ground of complaint, but pointed it out, as I understood him, as something which would tend to further secure the satisfaction of the High School masters in connection with these examinations.

Q. Would, in fact, place the High School master in a more secure position? A. Certainly.

Q. And, therefore, certainly the state of things this was intended to reform was not satisfactory? A. It could not have been. I would have said some such arrangement should have been made on the start, that from the very nature of things there never can be an identity of views and consequent satisfaction where the examiner is one person, and the pupils who come from a particular school represent different interests.

Q. Well, there was dissatisfaction? A. I cannot go quite as far as that, but the reasonableness of the proposition was apparent to me, and I at once adopted it.

Q. But the gentleman would never have made the suggestion if he had been satisfied with the state of things? A. In the nature of things, I would have expected him to express dissatisfaction, but I did not go back to the grounds.

Q. But suggested a course that would remove an unsatisfactory state of things? A. *A priori*, I should have said it must have been unsatisfactory. My view was to prevent causes of dissatisfaction in the future, knowing, without giving the matter any particular consideration, that dissatisfaction must arise unless this new regulation was adopted.

Q. In this memorandum dated 25th April, 1877, in the 6th clause, you say, "To avoid any imputation of partiality, it is intended to exclude all officials in the Department of the Minister and members of the Central Committee from being in any way concerned in the preparation of new books, or interested in works which may be retained," and I believe it is a rule of the Committee that no book shall be sanctioned in which any member is interested? A. As to text-books—clearly.

Q. Copp, Clark & Company and Messrs. Campbell wrote to you with reference to the Examination Papers in Arithmetic, by McLellan & Kirkland? A. Yes.

Q. Now, once it became known that Mr. McLellan, who was an examiner, was the author of this book, it would have the same effect as if it were authorized—he being an

examiner? A. Well, first of all, what the Department has to do under the law is to authorize text-books for use by the pupils in the Public Schools. That, of course, is one question. We have not to our knowledge authorized one which is the production of any member of the Central Committee, or in which the Department knows that any member of the Central Committee is in any way interested. But this book has not been authorized or even recommended. It is a private speculation.

Q. Yes, but if Mr. McLellan, in his position, unites with a teacher in the Normal School to produce a book of this kind, and recommends people throughout the country to use it, is not that an offence against the spirit of the rule? Is it desirable, do you think? A. If this particular book is intended to occupy the place of an authorized text-book in the Public Schools—it is not and cannot be authorized.

Q. Is it, in spirit, with the wise rule intended to keep a member of the Central Committee above suspicion, is it right that this book should be published? A. Your question goes to the extent whether a member of the Central Committee should not be prevented from producing any book on any subject taught in the Public Schools.

Q. I will not argue with you. I will only ask the question? You are an authority on education; you are a member, I believe, of the University, and a distinguished member of the Senate; and now, as an authority on education, and a man of great experience on these matters; do you think it is a right thing that Mr. McLellan should publish that book? A. I will state what my first objection was in considering this question of Dr. McLellan and Mr. Kirkland, or either of them having anything to do with this particular book. I was of course obliged to consider that. I had no difficulty in regard to Mr. Kirkland.

Q. I see no difficulty as regards him. A. But I had the difficulty as regards Dr. McLellan. I knew nothing of that book until these representations were made to me. On the very first, this first objection arose, and that was, that Dr. McLellan, from being a member of the Central Committee of Examiners, in publishing a book of this kind, would send it forth with this particular advantage, that the Examiner and the author of this book were the same person, and that pupils, candidates who were being examined on these subjects would naturally derive great advantages from being familiar with Dr. McLellan's modes of illustration and his general treatment of these subjects; and that a book so published by him would be more saleable, have a greater value, and be more sought after than if Dr. McLellan was not a member of this Committee of Examiners. He had an advantage so far as regards the number of copies which might be sold, and the run of the book generally, which he would probably not have had else.

Q. And it would make his book more valuable to the publishers? A. Probably.

Q. And they would pay more for it? A. I do not know. I am not a publisher. I do know that the fact of Dr. McLellan publishing a book on Arithmetic, and explaining his different modes of working out problems, and being a member of the Committee of Examiners, would facilitate the use of this book by teachers and others.

Q. And suppose, further, that Mr. McLellan, in setting Examination Papers, were to take all his Examination Papers in that subject from that book, what would be the effect the moment it became known? A. Then Dr. McLellan would have fallen into the very evil which I thought, in my consideration of it, he would be most desirous to avoid.

Q. Suppose he fell into that evil, and add to it what you previously said, that his name alone would give it a great circulation, is not that substantially the same as if the book were authorized? A. I came to the conclusion that it was not my duty in any sense to interfere.

Q. Give me a categorical answer, please. Is it not equivalent substantially to the book being authorized? A. No, not by any means; because I started by showing what it was the duty of the Department to do, and what not to do. It is the duty of the Department to select the authorized text-books, and that is not in any sense within the category. There is no middle term. Either a text-book is authorized, or it is not.

Q. What is the object or the policy of the rule that a member of the Central Committee shall not write a book which is authorized? A. Because the particular book thus authorized is the only book the trustees or teachers or pupils have a right to purchase for use in the schools on that particular subject. In the other case it is in the multitude of books which a man may buy or not.

Q. I take the object to be to prevent a member of the Central Committee deriving any undue advantage from his position? A. The only books the Department has control of, in

the sense of discharging its duty under the Act of Parliament, are such books as are sought to be made authorized text-books of.

Q. Is not the object to prevent a member of the Central Committee trading in his position ? A. Certainly, and no member of the Central Committee has a right to be directly or indirectly interested in any text-book, the question of whose authorization is before the Department for consideration.

Q. We have it that Mr. McLellan publishes this book and that the newspapers state that he is the author of it, and you say that tends to give it a sale. Supposing he took the bulk of any given Examination Paper from that book, would he not do a very improper thing ; but, also, would he not be doing precisely what that rule is intended to guard against—trading in his position as a member of the Central Committee ? A. I said he would fall into the evil he, above all others, ought to have avoided.

Q. Suppose he did, would he not be trading in his position ? A. No, because that rule had reference only to that one question of a book sought to be authorized as a text-book. This particular book never was intended to be authorized, and no one ever applied to have it authorized as a text-book. It is published by Mr. Kirkland and Mr. McLellan for purposes of their own, but it is not within the category of text-books.

Q. I do not understand you to say it would be right for members of the Central Committee to trade in their position in other books, though they were not text-books ? A. No. I think this matter of great importance, and one in which everyone should come to a right conclusion, and I endeavoured to do it. I stated to you now what seemed to me the objections. I have not been asked my reasons for coming to a different conclusion.

Q. But I gathered from what you said, that you do not approve of that conduct on the part of Mr. McLellan. Is he justified in publishing that book, and, not only publishing it, but taking the bulk of an Examination Paper from it ? Would you justify him ? A. Mr. McLellan would be justified in publishing *bona fide*, for the assistance of teachers and others, any treatise on any subject in regard to which he had any special knowledge or experience, and such a book should rather be hailed or encouraged than refused, but Mr. McLellan is peculiarly situated when he assumes to prepare such a work for the general benefit of the schools, because he is hampered by his position as a member of the Central Committee of Examiners, and, in consequence of that, it was specially incumbent upon him, in preparing a book, not for use in the Public Schools, but for general information, to take care that, in treating his subject, or afterwards examining upon the same subject, he was not found in the position of publishing to the world his Examination Papers in advance of the time when the candidates were in the Examination Hall.

Q. Will you make a precedent of Mr. McLellan's conduct ? Would you approve of every member of the Central Committee publishing books ? A. I think they are to be encouraged in that, when the book is not to be used as a text-book, and when any member of the Central Committee has those qualifications which fit him especially for the authorship of a book which may be of great value to teachers and others connected with the Public Schools.

Q. Suppose the book were of very little value, the very fact of Mr. McLellan being the author, would give it a great sale ? A. It would sink, I suppose, by its own weight.

Q. When Mr. McLellan can appraise the value of every teacher in the country, can you say that ? A. If the book was intended to fulfil the same purpose on Mr. McLellan's part as if he had communicated to the teachers in advance the very questions he intended to give at the examination, language could not be too strong to express disapprobation of a book got up for such a purpose ; but my view of this particular book, and my justification for not having interfered with it—and I could only have interfered with it in one way, by recommending either that Dr. McLellan should suppress that book, or that he should cease to be a member of the Central Committee of Examiners—but I came to the conclusion that such a proceeding was justifiable in itself, and that what there was in it that might be objectionable, one would ascertain from the results—whether this book was in fact a publication in advance of the Examination Papers which he was called upon to set, and which should, of course, be entirely private to all the candidates until they see them in the Examination Hall.

Q. I understand you then to say, that you do not approve of the position taken up by Mr. McLellan in publishing this book ? A. If there was any identity between that book

and the questions which it was his duty, as one of the examiners, to submit. I may also mention a further consideration which was present to my mind before I came to any conclusion. In every University or system of examinations, as soon as the questions are printed and the examinations are over, these become public property, and in mathematics, and in fact on every subject, any student or any teacher has an opportunity of anticipating to some extent the general tenor of an examination by looking at the Examination Papers which have been submitted by other examiners.

Q. But you are aware that every care is taken in Universities to have the examiner as little in the confidence of the teacher as possible? A. Of course, and every examiner has the paramount duty of taking care that his questions are independent, so that one set does not give a clue to the next. In this country, it is unfortunately one of the difficulties in the University to get men on in the different subjects sufficiently to bring about a rotation of examiners sufficiently rapid to prevent the same examiners examining year by year on the same subjects.

Q. That being the rule in Educational Institutions in the Old Country and here, do you think it advisable that an examiner and a teacher should appear as joint authors of the book? A. Well, it throws upon these two gentlemen a greater responsibility than any ordinary examiner, supposing they are acting as examiners; because they should be careful in seeing that there is no connection between questions they submit on any particular subject, and questions they have theoretically propounded and assumed to solve in a treatise like that.

Q. In that case, then, it would be very deplorable if there was a great similarity between the special teaching of Mr. Kirkland, and the Examination Papers of Dr. McLellan? A. I have not myself paid any attention to that.

Q. But you laid down a general principle? A. I think that is as far as I can go.

Q. That principle was, that those two gentlemen appearing here as joint authors, they should be especially careful that no correspondence appeared between the teaching of the teacher, and the Examination Papers of the examiner? A. I wish to mention further, the difficulty there is, firstly, in preventing Examination Papers year by year on any particular subject getting out. It has prevailed and prevails everywhere, that there always are publications of Examination Papers. There is no novelty in that.

Q. You were Minister of Education in the latter part of 1876? A. Yes.

Q. Do you remember Mr. McLellan getting leave of absence to go to England? A. Yes.

Q. Was it you who gave him leave of absence? A. The Lieutenant-Governor in Council, on my recommendation.

Q. On what ground did he get leave of absence? A. Ill health.

Q. Did he get a gratuity while he was away? A. There was a small sum of $500. It was not a gratuity, but was intended to secure, in fact, what we have taken some advantage of since—to secure his obtaining by personal experience some knowledge on questions which the Department at that time had under consideration—for instance, the whole question connected with the training of teachers and other matters.

Q. And what was that sum charged to? How did it appear in the Public Accounts? A. It was put in, I suppose, as a charge. I am not sure how—I have not seen it.

Q. Was it charged to the revision of text-books? A. I do not know.

Q. Would it be incorrect if it was charged to the revision of text-books? A. It would not be under its proper heading at all. My recommendation would appear on the face of it.

Q. Are you aware that, when in England, Mr. McLellan wrote a letter which was published in the *Journal of Education* for November, 1876, in regard to Hamblin Smith's Arithmetic? A. Yes, I see it here. It is as follows:—

"LONDON, 8th Nov., 1876.

"*To the Editor of the Journal of Education.*

"SIR,—In view of the many failures at the recent examination, I take the liberty of recommending candidates for future examinations to read carefully, Hamblin Smith's Arithmetic (published by Rivington), by way of preparation in this important branch. Candidates failed, not because the papers were extremely difficult, but for want of power

in independent analysis, a want of familiarity with the *Unitary Method.* This method to which the Central Committee have given prominence during the past five years, is explained and illustrated by Mr. Hamblin Smith; and if intending candidates apply the method to solve the questions given in Mr. Smith's work, as well as those given from time to time by the Central Committee, I venture to predict that there will be fewer failures at the next examination, and little or no clamour about the difficulty of the papers.

"J. A. McLellan."

That letter would take something like a fortnight to come, and, I suppose it appeared in the *Globe* and *Mail* of November 22nd. Are you aware of that? A. I am not quite sure.

Q. At all events, you see that it is written on the 8th? A. It got into the Journal with my sanction.

Q. Are you aware that, on the 28th of November, Messrs. Adam Miller and Company published that they had secured the copyright of Hamblin Smith's arithmetic? A. I got no information and could have got none, unless it came up in the shape of a formal application to the Department.

Q. When was this book authorized? A. For the first time in July, when the new regulations as to text-books were finally approved of by the Governor-in-Council, 11th July, 1877.

Q. When was it authorized? A. I can look at the original proof of the regulations.

Q. It was recommended 11th July, 1877? A. No, this date is in reference to the regulations as formerly promulgated, but the consideration of that book was up before me sometime in June, 1877, because I left Toronto before the 11th July. This is a conventional date, but I shall be able to give you the exact date when it was under consideration.

By Mr. Edgar.

Q. There is a note there in regard to that book—"Conditional on being adapted to Canadian Schools and being brought up to the present time?" A. Yes. Here is my revise of the proof, dated June 11th, 1877, and that contains what you see in the published regulations of July, namely, Hamblin Smith's Arithmetic, with the note referred to, so it was June 11th that I decided to recommend that book, subject to this condition, to the Governor-in-Council. The date July 11th, is a mistake for June.

By Mr. Davin.

Q. How would you account for the fact that Messrs. Adam Miller and Company, in November, 1876, some six or seven months before you recommended the Lieut.-Governor in Council to authorize this book, secured the copyright? A. I cannot account for it, except that Copp, Clark and Company, and Campbell and Son did the same thing in regard to these books.

Q. Does it strike you as leading to any inference that immediately on Mr. McLellan writing this letter they got the copyright? A. If I were a publisher, I should have had my eyes open on books in England and Canada, which would be of use to the schools here.

Q. It does not strike you as strange that they should take the risk of having the copyright some seven months before you had authorized the book? A. There is nothing singular in it.

Q. Nothing singular in their taking a school book of which you could not sell ten copies on the popular market, but only to scholars and teachers, and you do not think it singular that, immediately on this letter being published, they should have secured the copyright? A. Supposing they saw this letter from Dr. McLellan, they would have a very good hint from which they as booksellers might venture to introduce the book. I should have done so if I were a bookseller.

Q. This is edited by Thomas Kirkland, &c., and William Scott, B.A., &c., and in the preface to the Canadian edition, is this sentence: "We have to thank Dr. McLellan for hints and advice during the progress of the work." Are you aware whether he took a very active part in superintending this? A. I know nothing about it at all.

Q. You do not think it strange that a member of the Central Committee should take an important part in giving hints and advice in such a work which was to be authorized? A. So long as he was free to do it—so long as he did it in the interest of the schools.

Q. Do you see nothing strange in the fact, that he, as a member of the Central Committee, allows that sentence to appear in the preface? A. I see no harm in it, but rather an advantage.

Q. With this rule, that no member of the Central Committee should be "concerned in the preparation of new books or interested in works which may be retained?" Could he give hints and advice without being interested in the preparation? A. I think so, very clearly. The question is, whether he did it to promote the general interests of education in Ontario, or for a selfish pecuniary purpose.

Q. Would not that work be of money value to the publishers? A. Was it of money value to Dr. McLellan?—if so, it comes within the prohibition of my rule.

Q. What is his salary? A. $2,000 as High School Inspector.

Q. Does he get anything as member of the Central Committee? A. He gets his travelling expenses, and I do not know whether he gets part of the appropriation for the Central Committee for the examination of Library and Prize Books.

Q. The Central Committee, then, are not paid as a body? A. Professor Young is a professor in the University, and there is a small sum distributed among some of the members, but I am not sure whether the High School Inspectors, who are also members of the Central Committee are not fully paid by the $2,000. I have now in my hand the pay sheet. Yes, they are each paid $200 and the Chairman $400. No, they are not paid at all. The mistake arises from the printed list, which only gives me six examiners, while the actual payments involve the whole eight. They are paid at the rate of $400 for the Chairman, and $200 for each of the other members.

Q. Then they are paid? A. The Chairman $400, and each of the members of the Central Committee, as such, $200 a year.

Q. Did Dr. McLellan have a conversation with you immediately after he came back from England? A. Well, the conversation was with him and other members of the Central Committee.

Q. Did he tell you he had received a present of any books from Rivington's and Longmans? A. The first time I had the pleasure of meeting him was when I met the Central Committee.

Q. Did he state that he had received a large present of books from Rivington's? A. I heard nothing on the subject. By the way, there was a number of books produced in the Central Committee Room which I referred to as specimens of the improvement they were making in England in the production of text-books, and I suppose these were books brought out by Dr. McLellan.

Q. Have the Central Committee power of sanctioning books without your knowledge? A. They have no power whatever.

Q. I suppose if they, or any influential member, if any member who ran the Committee were to whisper in the ear of Adam Miller that a book would be authorized, it would be authorized? A. I think any member of the Central Committee who did that would be unfit to occupy that position.

Q. But could an influential member of the Committee secure, beyond any doubt, that a book should be authorized? A. If any member of the Central Committee did that, he would be abusing the confidence I repose.

Q. Could he do it? A. I should be very sorry to think so.

Q. Is it possible? A. Until I have evidence to the contrary, I should not assume it.

Q. But is it possible? A. There are many things possible, but not at all probable.

Q. Who spoke to you about sanctioning Hamblin Smith's book? A. That particular book came up with other text-books in consequence of the Central Committee assuming to report to me in answer to my different memorandums on the subject.

Q. Did any particular member of the Central Committee speak to you about Hamblin Smith's book? A. I think there was no other means of communication than from the written report of the Chairman of the Central Committee.

Q. About Hamblin Smith? A. It includes that and all the others.

Q. Did no member of the Central Committee speak to you about it? A. I have no

recollection of any single book being referred to, as to what books should be authorized as new text-books.

Q. As a fact or not, has the Central Committee power,—does it assume power, to act like the defunct Council? A. Not in any sense, excepting that, while I have theoretically the power of revising their examination questions, I do not do it. It would be impossible for one man.

Q. But, if the Committee advise that a book be authorized, you do not make any objection? A. It does not at all follow. Since I have taken charge of the Department, I have assumed to be the only person responsible, and so far as any action of the Governor-in-Council is concerned, I assume to be the Minister on whose recommendation any Order in Council is based.

Q. Have you ever refused to authorize any book they have recommended? A. There is one under consideration—Swinton's.

Q. Have you ever refused? A. No, I do not suppose I would refuse. In recommending an addition of two members to the Central Committee to the Lieutenant-Governor in Council, I express the reason, that I rely upon them.

Q. Would it be correct if any member of the Central Committee boasted that he was the directing mind of the Educational Department? A. I should be very glad to give way to him.

Q. And had taken you in hand? A. I should be delighted if he took charge altogether.

Q. Did you create the office of Model School Inspectors—when did you create it? A. There is no such office.

Q. What position do Mr. Ross and Mr. Tilley occupy? A. This is the position in regard to Model Schools. The regulations in regard to Model Schools were approved of finally by the Lieutenant-Governor in Council in the month of June before I left for England, and this one question remained—how best to inaugurate these County Model Schools,—and the Governor in Council approved of my suggestions, which went to this extent, that the Central Committee should be entrusted with this particular duty instead of the Education Department itself, by its regular officers, assuming to do it. The Central Committee had this duty assigned to them, and they assumed to assign it to the sub-committee, being the four Public School Inspectors—Mr. Glashan, Mr. Tilley, Mr. Ross, and Mr. James Hughes.

Q. Were Messrs. Tilley and Ross appointed by the Central Committee or by you? A. The Central Committee, in assuming to discharge the duty confided to them by the Governor in Council, as a body, undertook to delegate four of their body to carry that out.

Q. These were, then, appointed by them and approved by you? A. It was entrusted to the eight, and the eight chose to leave the performance of the duty to four.

Q. Then it is not true that Mr. Ross was appointed to that position directly by you? A. There was no appointment of anybody directly.

Q. Do you remember Mr. Ross resigning his inspectorship of Lambton? A. I believe he did.

Q. Had he any conversation with you on that? A. Yes.

Q. Did you advise him to resign? A. No, that seems to have been of his own motion, as far as I am aware.

Q. You told us you had two questions to consider in making a change in regard to the copyright—one of these was the financial. Now, as a fact, has not the change in that copyright matter been productive of cost rather than the reverse? Are not books more expensive than they were? Is not the Department more expensively conducted in consequence of the change? A. I suppose for the public, if the Province undertook the whole duty of compensating authors, there would be a less cost.

Q. Do not the books cost more? A. They would cost more.

Q. They cost more under the present system? A. Yes, because the publisher, and not the public, has to arrange with the author.

Q. Mason's English Grammar is one of the authorized books, and costs seventy-five cents—258 pages? A. Yes; there is the English edition as well.

Q. Does not that seem a large price for that—far in excess of what it used to be? What would it cost before? A. That book was never introduced before. My first information was in reference to the price of the English book.

Q. Compared with the Canadian price before? A. I would not undertake to weigh between that and another. I had all the prices before me. When the question of authorizing the grammar was before me, I was not aware it was any other than an English publication. It was in the course before the publication that I learned that Adam Miller & Co. had secured the copyright.

Q. The true comparison is between the price of such a book in Canada prior to the change and the price now; and I ask, is that not a dear book, making that comparison? A. The Department is responsible when it authorizes a text-book for seeing that it goes into the schools at a reasonable figure.

Q. Here is a little book—Elementary Statics, Kirkland, 2nd Edition—197 pages. That is not an English book, and it is down here at $1? A. Yes. Upon that question of the reasonableness of the price, I certainly relied upon the judgment of the Central Committee. They had my instructions, clear and specific, on that point; and it is so in regard to all these questions which involved the reasonableness of price.

Q. Are you aware that one of the members of the Central Committee is connected by some intimate or family relationship with the firm of Adam Miller & Co.? A. I know nothing at all of such a circumstance.

Q. With regard to the *Journal of Education*, why did you decide to drop the *Journal of Education*? A. Both political parties seemed to have made up their minds last Session that it should be discontinued.

Q. When this *Canada School Journal* came late in May, 1877; when you found it on your desk? A. No, it was not on my desk, but happened to be lying on the Secretary's desk as I passed into my office.

Q. You said, "Late in May, 1877, when I found on my desk the *Canada School Journal*?" A. It was on a standing-up desk on which papers are placed.

Q. Did you ever hear of it before? A. Never.

Q. In considering to make that arrangement with Adam Miller & Company, you took into consideration the power publishing such a journal would give them in regard to text-books? A. Well, I did not see any mischief there at all. That *Canada School Journal* could not affect the question of text-books in the least, whether it existed or not

Q. The Editorial Committee of this *Journal*, which is the property of Adam Miller, are McLellan, Kirkland, Hughes, Alfred Baker, William Houston. Of that Editorial Committee McLellan and Hughes are members of the Central Committee. The Provincial Editors are Mr. Buchan, J. W. Ross, J. C. Glashan, these three being members of the Central Committee. Out of eight persons constituting the Editorial Committee and the Provincial Editors, you have five on the Central Committee. With that connexion between them and the publishers of this *Journal*—a book-publishing house—does it not give to that publishing house an advantage over other publishers? A. It could only be in one way—by corrupting these men.

Q. As a statesman, I ask you—is it not the recognized policy of statesmen never, if possible, to take a course that leaves the door open for corruption? A. The *Canada School Journal, per se*, what it purports to be, is a journal devoted to the special purposes of education. There is nothing in that to compromise any one.

Q. When you were explaining the change of policy in regard to the publication of books, you said one of your objects was to prevent a monopoly. Would it not be a bad thing if this was calculated to create a monopoly? A. Yes; but I am speaking of a monopoly in the sense of forcing the schools to pay higher for a text-book than they could be reasonably asked to pay for it. There are two ways of looking at it—first, as to publishers, and next, as to its operations upon schools. The latter is under my care, but the other is not. Booksellers, in my judgment, like other persons, do the best they can each to keep up in the race with the other.

Q. But what chance has the general run of the trade against Adam Miller and Company, when these gentlemen are connected editorially with him and his newspaper? A. I suppose they can publish at fair prices.

Q. With five members of the Central Committee at Adam Miller's back and at his side, how is that? A. That does not affect the right of other publishers.

Q. You told me that when this Central Committee recommends a book, as a rule it

is authorized? A. That is when I ask them to consider a text-book, when it is to meet a manifest want.

Q. I understand they recommended Hamlin Smith before you recommended it? A. No. I asked them to consider the whole subject between text-books authorized and text-books to be authorized—what would be the best in the interest of the schools.

Q. That leaves them great power in the way of recommending books, does it not? A. If I were to refer to them to report on any text-book, I should accept their recommendation or not as I thought proper, but I certainly would not accept it if I thought they were not advising me in accordance with the best of their judgment, but were advising me in consequence of their having pecuniary or other interests.

Q. The question I put is this: There are five gentlemen here—I suppose they are paid—they are on the Editorial Committee, in an intimate relation with Adam Miller & Co., and they are five of eight on the Central Committee; you would not say that publisher has not an advantage over others? A. The existence of the *Canada School Journal* and the connexion of these gentlemen with it would not in the slightest degree alter my confidence in them as members of the Central Committee.

Q. But would it not tend to make them favour Adam Miller & Company? A. No, because their position is there rather in the interests of the schools. It is an independent school journal, maintained in the interest of education.

Q. Is that independent of the publishers? A. If it ceases to be an independent school journal, published in the interest of the schools, the Government will be prepared to withdraw from it; but we assume that it will be continued as it appears to have commenced.

Q. Can you conceive this *Journal* condemning a book published by Adam Miller & Co.? A. It must be published by some one.

Q. Can you conceive this *Journal*, their property, condemning a book published by them? A. I would not look to it for inspiration.

Q. Can you conceive this *Journal* condemning an inefficient book published by them? A. The functions of this *Canada School Journal* have nothing to do in the world with the functions entrusted to my Department. The only rivalry that could be would be to assume that the *Journal of Education* was still continued and this *Journal* was occupying the same ground.

Q. Surely you have an opinion on this question. I must press that question. If a book was published not up to the mark by Adam Miller & Co., can you conceive that paper, their property, condemning it? A. I would not look to that paper for condemnation.

Q. I must ask for an answer. Can you conceive that *Journal* attacking a book of Adam Miller & Co., that was not up to the mark? A. I should not expect anything of the kind. I should not expect in Adam Miller & Company's *Journal* any adverse criticism upon any book of theirs. But, then, I never called the *Canada School Journal* in any sense authorized by the Governor in Council, as intended to be a critic upon matters of that kind.

Q. Would you say that *Journal* occupies the same independent position as regards the publishing trade as the previous *Journal* occupied? A. The publishers rather complain of that *Journal* publishing advertisements only in the interests of the Depository.

Q. I ask you whether this *Canada School Journal* can be as independent, it being a creature of Adam Miller & Co., in regard to publishers as the old *Journal of Education*? A. The old *Journal* assumed to invite all persons to advertise there, and it was open to publishers to take advantage of it.

Q. Could this *Canada School Journal* occupy as independent a position in regard to the publishers? A. In one instance you have Adam Miller & Co., publishing this *Journal*, and what advertisements they choose to publish they can; and the same opportunity is open to every other publisher.

Q. I am speaking about the editorial matter and not about the advertisements. Will you say that this paper, the creature of Adam Miller & Co., could be as independent in regard to publishers as the old *Journal of Education*? A. The *Journal of Education* did not assume any more than to be the vehicle for communicating information. Strictly speaking, there was no editorial matter, except to convey certain facts.

Q. Can the *Canada School Journal*, the creature of a publishing house here, be as independent as it is desirable such an organ of the Education Department should be? A. If this *Canada School Journal* is not as independent as the general public who take it, including my department, desire and think it ought to be, it will very soon cease to have an existence.

Q. Must not having the control of it give an advantage to Adam Miller & Co's. publications? A. And having the columns open for advertisements? Certainly. Adam Miller & Co., through the *Canada School Journal*, can get more publicity for their books —authorized text-books or not—than any other.

Q. And secure more favourable notice? A. Possibly.

Q. And this is subsidised by the Government? A. No. We take 250 copies and pay $50 a month. That is for the privilege of inserting in the *Journal* Departmental notices, and other information for Trustees.

Q. Is not that subsidising it? A. We get 250 copies and pay $50, and have a certain space allotted to us.

Q. That makes it to some extent a Government organ? A. It gives it a better chance of continuing its existence than if the *Journal of Education* had been continued.

Q. And it is the property entirely of Adam Miller & Co.? A. So far as I know anything about it, it is what it appears to be on the face of it.

Q. Then, this publishing firm, who control this paper—the Educational organ of this country—does it not tend to give them a monoply in school-books? A. I see no necessary connexion between the two.

Q. They have, on their editorial staff, five members of the Central Committee whom you have proved to have a controlling interest in text-books. Does not that tend to give them virtually a monoply in text-books? A. It could have no relation at all whatever, and would require something more to make it at all dangerous.

Q. You really think that has no tendency to give them a monoply? A. At the same time, if the relations are of a corrupt character between any of these gentlemen and Adam Miller & Co., then you have a positive evil which it would be my duty, of course, to remove.

Q. In that complaint of Copp, Clark & Co., and the complaint of Campbell, it struck both these publishers that Adam Miller & Co. had an advantage over them? A. What did strike them was that they understood from my statement that it was my desire to arrive upon this question of text-books at a conclusion which would be satisfactory to all publishers, and that no official in the Department should have, directly or indirectly, to do with the preparation of text-books; and this particular book was supposed to be an infringement upon what they understood to be my declaration of the principle which was to be adhered to—an infringement upon the conclusion I had arrived at. It had nothing to do, as far as I could see, with Adam Miller & Co.

Q. You told me the maximum retail price of the books is guided mainly by the recommendation of the Central Committee? A. Yes. I would not assume to come to a different conclusion from that which they offered unless I thought that the price was excessive.

Q. What would be your opinion if, under that system, the books cost the public more than under the old system? A. If it was the same book, it would be no improvement.

Q. In fact, a retrogression? A. Yes. The tendency should be rather to cheapen the books than to increase the price.

By Mr. Edgar.

Q. You were asked whether you had received any charges before, in a letter or personaliy, against members of the Central Committee; and you spoke of having received some, and also said you had not paid much attention to it? A. At first, I was under a wrong impression. These complaints were very different from some suggestions I received from Mr. Seath in regard to making some arrangement to prevent the schools being known to the examiners when the answers to the questions were read over. Mr. Seath's letter was rather suggested, and, I think, prompted by some discussions which

had taken place in the High School section. The others were quite different, and came from a different source.

Q. Had the complaints in that other letter relation to the charges which are being investigated under this Commission? A. Nothing, except some charges of particular partiality and prejudice in reference to this particular master of a High School. It had nothing to do with what is being inquired into now.

Q. With reference to Mr. McLellan's being joined as an editor with Mr. Kirkland in the publication of these Arithmetic questions, Mr. Davin elicited all the considerations against it in your mind. Mention the considerations which weighed with you when you permitted him to remain? A. Such a book would have for its object rather giving teachers information in order to enable them the better to prepare their classes for examination, and the more experienced the persons were who prepared books for that purpose, of course, the more value there would be in the teachers using these books. Dr. McLellan's letter of the 8th November, 1876, which was read, shows that this particular subject of Arithmetic was having especial attention paid to it, because it was on the Arithmetic questions that the large percentage of failures had taken place at the previous examinations in July, and also for school teachers. This letter was written by Dr. McLellan, when he understood in England that a large number of failures had arisen in the examinations in July, both for Teacher's Certificates and in the Intermediate Examinations, and this was to explain how the failures had resulted, and offered a remedy. His remedy was to use Hamblin Smith's Arithmetic and become conversant with the system on which for five years the Central Committee has been examining; and the aid of Dr. McLellan would have tended rather to enable teachers to train their pupils properly than if it came from a different source.

Q. Did you not see an analogy between Kirkland's book and the old University Papers? A. It is so in all examinations, that the same subjects have been examined upon by any number of examiners.

Q. By the same examiners? A. One of the evils in the examination system is, that the same examiners will fall into a system of giving questions which will give a student who refers back to previous papers of his an advantage rather in the nature of cram than preparing himself for any possible set of questions.

Q. There would be no more injury in the publication of these papers by Mr. McLellan than in the necessary publication of any former examination papers of his? A. No; but his being also an examiner required of him to be more careful in seeing that the answers to his questions were not in any way the result of a process of cramming up any of the questions in advance.

The Commissioner.—I understood Mr. Davin's point to be that, while this book was not one of the authorized books, yet, candidates having to be examined on what they had acquired from the authorized books, the danger was that Dr. McLellan, an examiner, might, by his book have led the pupils to understand that they should take the line indicated in this book.

Mr. Edgar.—In order to make them buy the book?

The Witness.—And hence a greater vigilance would be required on the part of Mr. McLellan than anyone else.

Mr. Davin.—Also that it would lead to a large sale of the book.

Mr Edgar.—All the Minister of Education had to do with it, was to consider whether it was proper for him to publish the book.

The Witness.—The question to consider was, whether to call on him to withdraw the book, or withdraw from the Central Committee.

By Mr. Edgar.

Q. You have explained in regard to the *Journal of Education*, that you were accomplishing efficiency by changing it. I suppose economical considerations may have had something to do with it? You say $50 a month, and by the Estimates of Ontario, I see the cost of the *Journal of Education* was $2,360? A. Of course; and there was a further question that it formed no part of one's duties as Administrator of the Department to be undertaking monthly to publish a journal of this kind. It was not necessary for the Department as a Department to continue the *Journal* otherwise than for the purpose I have men-

tioned—for the information of the officials who form part of the system. There was no necessity by Departmental action to make the *Journal of Education* what the *Canada School Journal* professes to be—to become rather a medium for that kind of information which independent persons engaged in a common pursuit may impart to one another. The *Journal* was rather a gazette in its nature, but to justify the expense attending it, we endeavoured to make it as far as possible interesting, but we did not assume to occupy at all the place of an independent journal devoted specially to educational subjects. It was quite beyond my capacity as head of the Department to undertake an independent educational journal in any sense in which a private publisher could do it.

By Dr. McLellan.

Q. Did I ever privately or in any way whatever recommend the suspension of the *Journal of Education?* A. You did not, and no one even suggested it. It was my own voluntary action, and the result of my consideration of the whole question in the month of March 1876.

Q. Did I ever advise you to enter into any arrangement with the publishers of the *Canada School Journal*, whereby they were to receive this subsidy, as it is called? A. It was all on my perfectly individual independent judgment, and I had no suggestion from first to last coming from yourself in reference to the *Canada School Journal.*

Q. Did I ever express any opinion to you privately as to the advisability of accepting any book whatever as an authorized text-book? A. No communication of any kind, other than that which came through the Chairman of the Central Committee, passed on the subject between us, other than some incidental references to these English text-books when I met the Central Committee in their room.

Q. Nothing privately? A. It was in regard generally to the kind of text-books which were being produced in England.

Q. Do you recollect my asking you if you thought, as some publishers were asking me to prepare a work on mental arithmetic, there was any impropriety in my doing so for teachers, if no authorization was asked? A. I have always had but one view on that.

Q. Are you aware that Mr. Kirkland is not a teacher in arithmetic in the Normal School? A. He is science master.

Q. Are you aware that inspectors and teachers and examiners in England, in connection with the University of London, prepare text-books? A. The text-books generally seem to me to have emanated from those engaged in the practical work of public instruction. Hamblin Smith is a tutor or regular coach in Cambridge. He has been very successful in carrying his pupils through examinations in Cambridge.

By Mr. Buchan.

Q. When did the first Intermediate Examination take place? A. I think the regulations came into force in 1875. I am not quite sure whether the first examination was in July, 1875, or in December, 1875.

Q. You became Minister of Education in February, 1876? A. Yes; it was before.

Q. You are not conversant with what took place before that time—do you know whether the first examination took place in July, 1876? A. I am not aware. The examination did take place in July, 1876. The date of the regulations will show. I find on referring that the first examination was in July, 1876.

Q. You had a letter from Mr. Seath, of St. Catharines, making some suggestions as to the way in which the Intermediate Examinations should be conducted in May, 1876? A. It was before the regulations, or rather before the mode of conducting the first Intermediate Examinations was settled, that these suggestions were made to me and acted upon.

Q. Then this letter of Mr. Seath's could have caused no change in the regulations, because there were no regulations to change? A. The examinations to follow would be the first Intermediate Examinations.

By Mr. Davin.

Q. I asked about an interview? A. Mr. Seath's suggestions were in the direction

of securing most perfect impartiality in the Intermediate Examinations, and that was before the first Intermediate Examination.

Q. And before the change? A. There had been no previous examination.

By Mr. Buchan.

Q. Therefore Mr. Seath's school could not have been treated unjustly in reference to any examination? A. The simple proposition is this: The Intermediate Examinations under the regulations appproved of in 1875, were about commencing—the first was to be held in July, 1876—a month or so previous to this, in consequence of something that fell from Mr. Seath, I directed that this particular system which prevails should be adopted, and it was adopted, and the examinations in July, 1876, and all subsequent examinations have been held under this system of securing impartiality.

Q. Did you receive any suggestions from any other quarter, as to the mode of conducting Intermediate Examinations? A. I think something verbally passed between myself and Professor Young and Dr. Hodgins.

Q. Did any member of the Central Committee object to this method of examining candidates, by numbers instead of names? A. No one assumed to make any objection at all to what was proposed. I think the Deputy was charged with seeing that it was carried out.

Q. Would you turn to the report of the High School Inspectors for the first half of the year 1876, classifying the High Schools, to shew in what class the Collegiate Institute of St. Catharines was placed? A. The return was not published, but it is on the fyles of the Department, and can be produced. That will show what rank the different Collegiate Institutes and High Schools obtained in the distribution of the $10,000.

Q. You stated you were aware that in other countries, examiners and teachers were frequently the authors of text-books prescribed for candidates? A. I am speaking merely from general knowledge. I meant that people who are entrusted with the duty of examiners, and persons employed as teachers, were the very persons from whom our text-books mainly proceeded.

Q. Do you know what position Balfour Stewart holds? A. My only reference was to Hamblin Smith.

Q. Are you aware that Professor Croft and Professor Cherriman have been examiners in the University? A. Yes.

Q. Are you aware that they are the authors of text-books which were authorized by the University? A. I know Professor Cherriman's text-books were in use when he was an examiner.

Q. Then the regulation which prevails in this Department, that no member of the Central Committee shall be the author of a text-book, is stricter than the regulation observed in the University of Toronto? A. Yes; and for the reason that the judgment of the Central Committee is consulted before any particular book assumes the position of a text-book.

By the Commissioner.

Q. Do I understand that there is a permanent recognized body of examiners in the University of Toronto, in the same way as this Committee is spoken of? A. They are appointed for two years, and sometimes the appointments are continued. As a matter of practice, the same examiners have been re-appointed. That has been my experience, it depending on whether other examiners were available or not.

By Mr. Buchan.

Q. Would it be altogether objectionable that the Central Committee should recommend a book for adoption if it was somewhat dearer than the one which it was to replace, if it was better? A. The books would be judged on their merits. The old books were imperative; the new books are only optional with the trustees, but the trustees and the teacher must concur before they introduce a new text-book for the old ones.

Q. When did the Central Committee send in its report, recommending the list of

text-books since authorized? Was it before the 1st May, 1877? A. On the 8th February, 1877, this letter was written by the Chairman of the Central Committee:—"I have the honour to transmit to you, the list of text-books the Central Committee have agreed to recommend for use in the Public Schools."

Q. What was the date of the first number of the *School Journal*? A. It was either published in May or June. I think the first number was published in June. It was in May I saw the first number.

Q. Is it intended that there shall be any changes in the text-books for some time to come? A. No. I am in hopes that all changes have been provided for and are now consummated, and that no further changes will be necessary.

Q. It is not likely that the Central Committee will be called upon to make any more recommendations in regard to text-books? A. No, nor the Department have any of these things to deal with.

Q. Should you or your successor deem it necessary, five years hence, to make any changes in text-books, would he be obliged to consult the Central Committee? A. Not at all.

Q. As they made their recommendations before the *Canada School Journal* was published, there could be no impropriety in their becoming editors of the *Journal*? A. That would not at all affect my confidence in them as persons with whom I was very glad to consult on matters connected with the Department.

By Mr. Davin.

Q. You said that a month or two previous to the change from name to number, you received some complaints, in consequence of which, you made the change?

The Commissioner.—I do not understand that from the evidence. I understood that some person, whose name he did not mention, had written a number of letters to him, that these letters did not influence him at all, and that the change was made after that, and was made on the suggestion of Mr. Seath. There is no evidence of a complaint on this point at all.

The Witness.—I misunderstood the purport of what Mr. Davin at first asked me. Some letters were written to me complaining of the conduct of one of the members of the Central Committee. That had reference to another thing altogether and another Head-Master;—but when it was asked in reference to the mode of conducting the examinations, I saw I was under a misapprehension and that what he was asking me was simply, Did I, or did I not, suggest an improvement in the proposed mode of conducting the Intermediate Examinations in consequence of an interview with a High School Master, and that brought before me an interview with Mr. Seath. I recollect, now, that it was not by letter but in a personal interview that Mr. Seath desired to have that improvement made. I have a memorandum of it in my agenda book, and the directions I gave for arranging that the system of numbers should prevail at the July Examinations.

Q. Then Mr. Seath did influence you in that direction? A. He certainly called my attention to a question it was very desirable to make provision for.

Q. Professor Cherriman was an Examiner in the University for a short time, but he never published a text-book, did he, in conjunction with the Professor? A. I do not know what his text-books are.

By Professor Young.

Q. I would like to ask if a change was ever made at all? A. No, the result of Mr. Seath's interview with me was to give direction in reference to this particular provision. I was not aware whether it had been provided for or not. I put that down, as the result of our interview, as a matter not to be overlooked.

Q. Did not the first Intermediate Examination take place in July, 1876? A. It appears to be the first, when the first was to be held under the regulations approved of in 1875.

Q. Were not numbers then used, and not names? A. Yes.

Q. Then there could not have been a change?

A. No. The provision was made in advance of the period of the first examination.

Q. Mr. Seath pointed out the advantage, and you approved of his views, and ar-

ranged in the very beginning that the Intermediate Examination should be held on that principle? A. I did not at the time of my interview with Mr. Seath enter upon the question whether that particular mode would be adopted or the contrary. I took a note merely of what I thought would result in removing any assumed complaint of Mr. Seath's altogether.

Q. Then, as the first Intermediate Examination took place in July, 1876, and Mr. Seath's letter was written? A. It was an interview—the result of a letter asking for it.

Q. But it is impossible that in May, 1876, there could have been a complaint about previous examinations? A. Yes. I was not aware before, that the July Examinations of 1876, were the first that had occurred under the regulations, my first knowledge of the regulations having been when they were brought under the knowledge of the Government in 1875.

Q. Did the Central Committee, do you recollect, make any recommendation before July, 1876, in regard to using numbers instead of names? A. I was not personally aware of it, but the regulations under which the examinations in July, 1876, were held, expressly indicated that that would be the mode of the examination. The regulations provided for it.

Q. You have no recollection that the Central Committee positively recommended the use of numbers. A. I am not aware of it. My first introduction to this question was what occurred during Mr. Seath's visit, and I did not profess then to understand whether the Central Committee had not already provided for it, or the contrary. All that I did was to make a memorandum on the subject that, if it was not provided for, it should be. I do not know at this moment that it had not been provided for. It was a memorandum that I found was carried out, whether provided for or not, in these first examinations which took place in July.

Some discussion ensued as to the course of procedure.

JAMES SLATER, Sworn :—

By Mr. Davin.—Where do you live? A. County of Oxford.

Q. What are you? A. I am a teacher.

Q. At Verschozle? A. Yes.

Q. Were you a student in the Normal School at any time? A. I have been.

Q. What year? A. The last half of 1871.

Q. Did you hear Mr. Kirkland, Science Master of the Normal School, say anything which would bear on this inquiry? A. I think I did—at the close of the Session—the last half of the session—while I was in the Canada Southern Station.

After some discussion as to the relevancy of the question, the examination proceeded.

Q. Were you here in 1876? A. I was here a short time in 1876.

Q. Did you attend the Normal School? A. I was here from January to the Easter vacation.

Q. Did you attend Mr. Kirkland's class? A. Yes.

Q. Do you know anything that would bear on this examination? A. Yes. In the fall of 1871, while I was in the Union Station, I think it was Mr. George Sherman or Sharman, who was with me, Mr. Kirkland came in, and Mr. Sharman drew one of the examination papers out of his pocket and showed it to Mr. Kirkland, and said, "you got up this paper, didn't you?" He said, "No, I did not." "Well," he said, "it is just like the questions you have been in the habit of giving to us." Mr. Kirkland said, "if he did not get it up, he handed a book to Dr. McLellan with a mark opposite the questions he had been drilling his class in, or that Dr. McLellan handed him a book with the marks." That was said by Mr. Kirkland. Then, again, when I was here at the examination in 1877, as I was passing along the street, by the south-east end of the grounds, we met with a certain person who had been here during the whole session—the whole year beginning with the Normal School session of 1875, and ending I think in July, 1876.

Q. Who was that person? A. It was Miss Kate Grant.

Q. What passed? A. She said that Mr. Kirkland's students would do well in his

subjects, because the Algebra paper that they had in 1876 was just similar to the questions that they had been drilled on in the Normal School previous to the examination. She said it was just Kirkland. Then, I was talking to Mr. Brown, and he said if he had been at the Normal School he could have made easily 90 per cent. in the chemistry paper: the students of the Normal School were well posted upon that. And Mr. Caspian said how poor they were in Algebra this last session; in fact, they said Mr. Kirkland had neglected Algebra greatly during the session, but after the session the tone changed greatly—the Algebra papers seemed to suit them. This was the 1877 first-class examination. Mr. Ratcliffe was standing there, and one of the students that was in the second division handed him the Natural Philosophy paper, and he said that the paper—using not a very proper term—was just Tommy's paper. Of course I knew whom he meant. He said further that these questions were got up. I said "I guess not." He said "Yes, they are; they are got up to make Mr. Kirkland's book sell."

By Mr. Edgar.—

Q. Who is Sharman? A. He was a student at the Normal School during the session of 1871.

Q. Where is he now? A. I could not positively say. I understood he went up to Goderich to teach.

By Mr. Davin.

Q. Do you know where Miss Kate Grant is now? A. I do not.

By Dr. McLellan.

Q. Did you say that you heard Mr. Kirkland say that he gave me a book, or I gave him a book, with certain questions marked, that I intended to set? A. I did.

Q. You attended the Normal School in 1876? A. Yes, a short time in 1876.

Q. Did you get any of the questions given by Mr. Kirkland during the course of the lectures? A. There was one very similar.

Q. Would it not have been remarkable if you did not get any on the paper similar to his teaching? A. I do not think it would.

Q. Do you think the course in Chemistry is a very wide course? A. Well, it is pretty extensive, I think.

Q. Would you not suppose, if an examiner's paper contained no questions similar to those given by the lecturer, that there was something wrong, either in the lecturer or the examiner? A. They might not be directly the questions of our teacher, and still they might bear upon the subject. I have stated that they were just about similar questions, almost *verbatim* to those given by Mr. Kirkland.

Q. Can you name any questions? A. No. I could in Arithmetic.

Q. There was a similarity in the Arithmetic paper? A. Yes.

Q. Does Mr. Kirkland teach Arithmetic? A. No, I think he does not. I mean similar to the book you have issued.

Q. Did you ever know an arithmetician set a paper fairly to test first class candidates, the types of which are formed in that book? A. I think I can find at least three first class questions in the arithmetic paper this year which are solved in your book.

Q. The identical questions? A. They are just the same in principle. The only difference is, I think, a name.

Q. Do you think you could set a paper, or that any fair arithmetician could, keeping within the limits prescribed by the programme, entirely independent of the type questions this book in arithmetic contains? A. As far as I have looked over the examination papers, I think there could be a paper drawn up independent of anything in the book.

Q. How long do you think it would take you to draw up a paper? A. I am speaking of a competent arithmetican, not of myself.

Q. Are you not aware that that book contains more type questions than any other? A. I think not, I think others contain more.

Q. What books? A. Robinson's Arithmetic, published in America, I think.

Q. You are not aware that the best types of questions have been selected from the best Examination Papers in England for this book? A. As far as I am concerned, I have studied Robinson's book and your book up to the first part, and I can trace a great similarity between yours and Robinson's.

Q. You attended the lectures in 1876? A. Yes.

Q. And observed a similarity between my paper on Chemistry and Mr. Kirkland's teaching? A. It was in 1877. It was Mr. Brown who said he could———

Q. In what session did you attend the Normal School? A. During one session, the last half of 1871.

Q. Not since then? A. I was there a short time in 1876, from January to Easter.

Q. Did you come up for examination in 1876? A. Yes.

Q. Then you must have had special advantages in listening to a lecturer who was posted on the questions about to be set? A. Well, the Chemistry was not fully gone into until after I left. He had not taken the Chemistry fully up.

Q. When you were examined in Chemistry, you did not notice anything similar to what he had said in his lectures? A. I think there was some similarity in some points.

Q. Then you had some special advantages by attending lectures? You could not trace any similarity unless you heard him lecture? A. In the work gone over there was a little in one question, but that would be all.

Q. You could not trace that unless you heard the points lectured on? A. I had read the chemistry over. I do not know whether it was on the whole. On one question it was.

Q. The similarity might be between the question and some book, and not Kirkland's lectures? A. There was a similarity in one question to what Kirkland had given, when I was there.

Q. Are you sure that the resemblance was between something I gave and what he lectured on, or something in a text-book? A. I think it is not dealt with more fully in the book, but I got it more fully from Mr. Kirkland.

Q. Did you make marks in chemistry? A. I did not receive my marks that year.

Q. Did you observe any similarity in Physics? A. I did not.

Q. Do you know you made zero on Physics? A. I do not.

Q. Do you know that, out of a possible 135, you made 35 marks in Chemistry. A. I do not.

Q. So, if there was collusion between Mr. Kirkland and me, if he understood what questions were coming, and gave you information, you could not have derived any benefit from it? You did not get a certificate, did you? A. No; not that year.

Q. Did you ever get a first-class certificate? A. No; a 2nd B.

By Mr. Glashan.

Q. Did you see Miss Grant in July, 1877? A. Yes.

Q. I think it can be shown that she did not write in July, 1877? A. I do not say she did.

Q. Nor was at the Normal School? A. I do not say she was; I said I met her on the street, and she said those students of the Normal School should have done well on the Algebra of 1876. Others were standing with me. Mr. Wood was there, and another whose name I cannot think of just now—Mr. William McGregor.

Q. You would judge that Kate Grant must have done well in Algebra? A. That I could not say. That is the expression she used—that any one who attended the Normal School should have done well.

Q. Were you ever trained under a coach—under a person whose business it is to train persons for examinations? A. Not except Mr. Kirkland.

Q. Were you ever under any other trained coach? A. I have in the High School.

Q. I mean a person who had been trained to train? A. No.

Q. Do you think you are competent to state, from your noticing Mr. Kirkland giving similar questions to those which appeared on the examination paper, whether there was collusion or only ability to foretell the questions on Mr. Kirkland's part—have you had sufficient training, or are you mathematician enough to judge? A. I think so; I know I am as competent as some who hold first-class certificates.

Q. Has he overdone what a coach can do—are you competent to judge of that? A. Taking it on mathematics, I think I might be a fair judge of that.

Q. You are quite competent to judge whether he could foretell more of the questions than a good coach? A. That I could not say, any more than in the mathematics; as far as I know I have stated.

Q. Would you think it strange if you were asked a question at an examination which you had neither read nor the lecturer had gone over? A. No, I do not think I would; I would not expect the same kind of questions exactly.

Q. But would you think it strange if a question totally different from any you had read on or had been lectured on, were given you? A. I do not think I would.

Q. You are a teacher, are you not? A. I am.

Q. What class do you teach? A. A mixed class.

Q. Have you pupils in the 5th Book? A. I have not now. I have had.

Q. Any pupils in the 4th Book? A. Yes.

Q. Have you sent any for entrance to the High School? A. I have not. I have sent them up for 3rd Class certificates

Q. Did you ever give them, before the examination, questions like those which appeared on the examination papers? A. I cannot say positively. I have trained them on the questions that have been given by the Central Committee.

Q. Did you never see a question which had been given—similar to one that had been given to your own pupils? A. They might have been somewhat similar.

Q. Would you think it right in your pupil to jump to the conclusion that you had had access to the papers beforehand? A. Not if they did not contain just the words of my question. If they contained the principle indirectly that I had trained them on, I should not; but if they contained the principle directly, I should think there was something wrong.

Q. Did you write in 1876? A. I did.

The Commission decided that Mr. Glashan, not being concerned in the evidence of this witness, could not proceed with his examination.

The examination of the witness continued.

By Professor Young.

Q. Did I understand you to say that in the Chemistry Paper, prepared by Dr. McLellan, there was only one question similar to what Mr. Kirkland had taught? A. There was one question similar.

Q. Only one? A. Only one, because the Chemistry had not been gone into fully until after I left in 1876.

The Inquiry was then adjourned until to-morrow.

Tuesday, November 13th, 1877.

James Slater recalled.

By Mr. Kirkland.

Q. I infer from what I see in the papers, that you stated that the conversation took place in your presence at the railway station in 1871, kindly state what that conversation was? A. Well, I was standing in the Union Station when you came in. Mr. George Sherman, or Sharmon, was standing with me, or close by me, and you stepped up to him, and he drew a paper out of his pocket—one of the Examination Papers.

Q. Which one? A. That I could not say, I think it was the Natural History papers.

Q. You are not sure what the paper was? A. It was one of the examination papers, I am sure.

Q. How do you know? A. I saw the heading, and he said to you, "did you not get up this paper?" and you said no, you said that you did not get it up, but that you handed Mr. McLellan a book with remarks opposite certain questions, or that Dr. McLellan handed you a book with certain questions marked.

Q. Do you not think that a rather extraordinary statement to make to two men that I was not well acquainted with, with you I had not spoken except in the class, had I? A. No.

Q. It was nothing extraordinary at all, you think? A. It might be considered so.

Q. Do you think a man in his senses would make any such statement, even if he had done it? If you had done it, would you make such a statement in presence of any one? A. I do not think that I would if I had been you.

Q. I think you are mistaken? A. I am positive that I am not mistaken.

Q. Did anything else take place then? A. I passed this remark to you at the time; I asked, were you going to change the Algebra; would there be a change in the Algebra, I meant, what Algebra would be used, if we would continue using the same Algebra; and you said you thought not.

Q. I did not teach Algebra then, did I? A. No; I asked for information, and I have a faint idea—I am not certain—that there was something said about Arithmetic, I said there was a certain question on the Arithmetic paper, which was similar to one in Robinson's Arithmetic, you said no. I had this impression. I do not swear it positively; but it is my opinion that this occurred. You said "oh no!" that it was original with Dr. McLellan.

Q. I did not teach Arithmetic then? A. You did not, you never taught Arithmetic during the time I was in the Normal School.

Q. You do not know where Mr. Sherman is now? A. I do not, I think he went to Goderich that fall.

Q. You go on to state conversations that took place between you and some of the other students, and you say that Mr. Brown—

Witness: It was Cassidy.

Q. Had complained before of no attention being paid to Algebra. When, and to whom did they complain? A. This was during the time when the examination was going on of this year. I was talking to Mr. Cassidy.

Q. Were you up at the examination this year? A. I was, Mr. Brown was a student at the last Session. I said the students were complaining, and I mentioned Mr. Cassidy's name as one, but I can mention others if necessary.

Q. Who are the others? A. Mr. Skalton, or Skelton—I am not sure of the spelling of the names—and McIntosh.

Q. Do you swear that Mr. McIntosh complained that there had not been any attention paid to Algebra? A. That you had not taken up Algebra much. Those were the words used by several of them.

Q. That is in 1877? A. Yes. That you did not take it up until near the close of the Session, that the impression was, that you did not drill them until the last six weeks.

Q. I did not touch it before? A. Not much.

Q. That is as true as the rest of your evidence? A. That was my impression from them, on the other points, I am certain.

Q. The other was an impression too? A. The other I swear to positively—with regard to the Union Station.

Q. This is the Natural Philosophy Paper for the second year? What year was that? A. The Natural Philosophy Paper was for 1877—The Second Class Natural Philosophy Paper for 1877, that is the paper I had reference to.

Q. You go on to state that you were here in 1876? A. Yes. I was there from January up to Easter.

Q. And that I did not take up Chemistry while you were here? A. I did not say so. What I said was, that you had not taken up extensively, what would be considered the First Class work.

Q. How often did I lecture a week while you were there? A. I think on Chemistry, it might be—I could not say positively—it would not average, I think, once a week.

Q. I did not lecture on Chemistry once a week? A. I do not think it would average that, I think you took it occasionally.

Q. What other subjects did I teach when you were there? A. You were teaching Natural Philosophy, Algebra, Chemical Physics and Chemistry. I think those were the principal subjects.

Q. How often do you recollect that I lectured on Natural Philosophy? A. I think more frequently than you did on the others, with the exception of Algebra. I think you spent considerable time on Algebra.

Q. Had you a time table? A. Yes.

Q. Did I keep to it? A. I think not. I think sometimes you took one in the place of other subjects.

Q. How often had I Physics? A. I could not say positively. I think you missed them once in a while, and said you would take Algebra. I recollect sometimes your taking two lessons alike in Algebra.

Q. That would not be very often, would it? A. Well, occasionally.

Q. And you traced some similarity in one question on the paper, and the work gone over? A. Yes.

Q. No more than that? A. No; not that I detected in your work, because the work principally asked on the Chemistry Paper was beyond what you had taken up.

Q. How far had I got when you left at Easter? A. I think you were up to about Iodine. I think that is where we were. I have a recollection of your teaching somewhere up to Iodine.

Q. How far in Physics? A. I think we were on specific heat.

Q. Do you recollect anything similar in the Physics Paper to what I had been teaching? A. No; I cannot recollect.

Q. You were up in 1871 for examination? A. Yes.

Q. When were you next up for examination? A. I think in 1873.

Q. You were up 1874? A. Yes.

Q. In 1875? A. Yes.

Q. In 1876? A. Yes.

Q. In 1877? A. Yes.

Q. You have had considerable practice in examinations? A. Yes.

Q. You have a very good memory and can recollect perfectly well what took place in 1871; and yet you fail every time in examinations. How do you account for that? A. I have not failed every time in examinations. I have taken seconds three different times.

Q. How often have you applied for first, and failed. A. I think I have written four times for first. I have received second grade on the First Class Papers. I have three seconds in my possession.

Q. You have no very warm feeling for the Central Committee for using you in that way? A. I have no desire to find fault. I take an oath solemnly that I never found fault with the Central Committee. I have always said that they acted fairly in regard to examinations.

Q. They plucked you four times for first? A. Yes; you can make as much of that as you please.

By Dr. McLellan.

Q. This conversation took place in 1871, you say? A. That in the Union Station.

Q. You stated yesterday that you were not quite sure whether I had given Mr. McLellan or he had given me a marked book? A. I say so to-day again. I am not sure which.

Q. Yesterday you appeared to be quite certain when I asked you the second time. Can you state positively which it was? A. No.

Q. When did you first mention that conversation to any one? A. At different times to different people I have been talking to. I could not say just the first time.

Q. When was the last time you mentioned it, through which you were brought here as a witness? A. It was through the call of the *Globe*. I noticed in the *Globe* that there was to be an examination held with reference to some charges. As I take the Daily *Globe*, I got the information from that, that the examination was to take place, and there was an urgent call, issued in that paper, of Prof. Young, demanding that any one who knew anything in reference to this inquiry, or the charges against the Central Committee, should hand them in. I wrote out a letter, calculating to send it to the Professor; then I thought perhaps it would be better to send it to the *Globe*; and then I changed my mind, and sent it to the editor of the *Mail*. I thought, perhaps, he would be the proper person.

Q. Can you name any of the parties you named the conversation to; and when you mentioned it? You must have been struck with the fact that it was rather a serious thing? A. I was at the time.

Q. You would have a distinct recollection of some of the parties? A. I think I have mentioned it to a person. I have mentioned it to my wife for one.

Q. Any one else? A. And I think—I would not be positive—to a man named Sherwood.

Q. When you knew that the wrong-doing was taking place, why did you not communicate with some of the authorities, and not allow so serious a wrong as that to remain in operation for so many years? A. I did not like to have anything to do with it—I did not like to interfere with it.

Q. Have you had a troubled conscience since? A. I thought it was wrong, but I did not want to have anything to do with it. I do not want to now, particularly.

Q. What impelled you to come forward? A. The urgent letter of the Professor, and I thought it might do myself some injury, but I would bear that if it would be a benefit to the community.

Q. You said that the first-class Arithmetic paper of 1877 contained questions not identical but similar in principle to those found in our book of Examination Papers? A. Yes, I say so. What I said was, that I could trace those; but I have been thinking over it since last night, and I think now I can trace four that are similar in nature in every respect, the only difference is in a word or so, and the figures may change a little, but the precise requirements of the thinking power of the mind would be drawn out exactly the same.

Q. Precisely the same data and the same conclusions are drawn? A. The same conclusions.

Q. Are they peculiar to that book, or are they found in other text-books? A. Two of them are peculiar to that book; that is just the working.

Q. You swear that there are two questions absolutely peculiar to that book, not found in any other text book? A. They are considerably so. There may be some theory in them, and part of them that might be drawn from others.

Q. Would it surprise you to know that these questions are found in many other text-books? You are a man of extensive reading on the subject? A. I do not think so; I said I had seen other arithmetics, but I do not pretend to say I have seen all arithmetics.

Q. Are any of these questions which you found in the book and on the Examination Papers, found on any preceding Examination Papers? I suppose that having been up for first-class four different times, you are quite an expert on the preceding Examination Papers? You have read them carefully? A. Yes.

Q. Are any of these three or four questions found on the preceding Examination Papers in the same form, or almost identical in principle if not in words? A. I think not; but they are found in your text-book worked out.

Q. They are not found on the Examination Papers? A. They are not found in the preceding papers that I am aware of; with my knowledge of the papers I think they are not.

Q. What was your impression? What inference did you deduce from the fact that there were several questions on the first-class Examination Paper similar in principle and very similar in wording to those in my text-book? Was it that the paper had been set to make the book sell? A. I did not draw that inference.

Q. Having read the preceding Examination Papers pretty carefully, do you know that any papers referred to, contained questions which contained the same principle and are identical in words with the authorized text-book? A. I think there are some in your book which are similar.

Q. Are you aware that any of the papers referred to, contained questions which not only contained the same principle, but are identical in words with the authorized text-book? A. That I could not say positively; but I had the impression that they were; I did not take the trouble to turn it up.

Q. I should imagine that, as a teacher, you were familiar with the authorized text-book; or have you any classes so far on? A. Yes! I have taken classes on that book.

Q. If our questions on the paper of 1874, are precisely the same as those in the authorized text-book, should you fail to recognise them? A. I never took the pains to turn them up to see if they were word for word; but I think they are just about the same, if not word for word.

Q. You did not draw any inference that that paper had been set to make the authorised text-book sell? A. I did not draw any inference from it, nor did I from your Arithmetic; but the inference I did draw was, that they were a great aid to those who had your text-book previous to the examination.

Q. You mentioned yesterday that the book was no better than many other text-books to enable teachers to prepare for examination? A. No, I did not.

Q. That it did not contain a greater variety of questions out of the text-books, you know? A. I still say so.

Q. Mention one or two of the books. A. I consider that Robinson's Arithmetic contains the same thing.

Q. Then, any teacher who prepares himself on Robinson's Arithmetic will be just as well prepared as one who goes through that book? A. Perhaps not, to answer your particular questions, perhaps, to suit you, you would not give them the full value unless they were solved in a particular method.

Q. Did you ever hear that I did not give full value on that account? A. I have heard it so stated.

Q. Whom did you hear state it! A. Some of the students in the Normal School.

Q. Did you get any certificate in 1871? A. I did.

Q. What certificate? A. A second class certificate.

Q. And a second-class ever since? A. I have taken two second-class certificates since.

Q. Who set the Algebra Paper in 1876? A. I do not know.

Q. You do not seem to have done very well in Chemistry and Physics, though attending Mr. Kirkland's lectures; and he lectured you say especially on the questions that were going to be set? A. Mr. Kirkland had not taken them up on the first class work purely, until after I had left.

Q. You must have had considerable lectures, and yet you made 35 out of 150 in Chemistry, and zero in Physics? A. That is your reading.

Q. Do you deny it? A. I do not. I never claimed to be good in Physics.

Q. You stated that you were quite able to form an opinion whether there ought or might reasonably be expected to be a resemblance between a paper set by a competent examiner and the teaching of the lecturer? You said you were quite as good as some men that had first-class Certificates? A. I certainly do consider so, and especially in mathematics.

Q. So you must have done well in Algebra and Arithmetic in 1876? Did you attend Mr. Kirkland's lectures in Algebra? A. Perhaps I would have done better if I had attended the last three months, after he knew what was going to be the paper, after you had given him hints.

Q. You only got part of his lectures? A. Yes.

Q. What per centage did you make in Algebra in 1876? A. I did not receive any of my marks in 1876.

Q. Are you aware that you made 52 out of 225, or about 23 per cent? A. No.

Q. Do you know what you made in Arithmetic? A. Perhaps I did not do as well in 1876 as I have done before. I think you are quoting from my worst examination. It is your interest to do so. I can quote from other examinations.

Q. You ought to have done better in 1876 than in 1875, or 1874? A. I have a good reason to show why I was not.

Q. Do you mean to say that I knew you were coming up and did not mark your questions fairly? A. I do not.

Q. Did I ever meet you or know anything about you? A. You did not. I do not charge any such thing; but I can give a positive reason why I did not do considerably better in 1876, than I did; that is my worst examination I think.

Q. You made 96 marks out of 275 in Arithmetic—about 32 per cent., and 52 marks in Algebra? A. I do not think that this appears in my examination.

Q. Are you aware, that you made in Natural Philosophy 20 out of 225; in Euclid, you have done better, 125 out of 200; in Education, 33 out of 150; and in Physiology, 63 out of 150? A. Perhaps you will quote from my marks in Arithmetic in 1874.

Q. I have not got it? A. Of course, these may not be prepared.

By Mr. Davin.

Q. Are you confident that this conversation that you speak of, took place in the Union Station? A. I am.

By Mr Kirkland.

Q. Dr. McLellan borrowed a book from me in which there had been certain marks on the margin; or I borrowed a book from him in which there were marks? A. That is it.

Q. And if that were true; what inference would you draw, supposing you borrowed a book from me and I had marked it in Algebra? A. The inference I drew, was that if you borrowed a book from him in which these questions were marked, you could drill your class in these questions.

Q. How would I know that he marked for that purpose? A. I considered that there was a mark there to draw attention to something.

Q. Have you not marked books in the margin, when you have been reading? A. I have.

Q. And if you had borrowed a book and found marks on the margin, you would not think it anything extraordinary? At the same time would it not strike you that two persons might mark a book in the same way? A. My impression at the time was, that you implied that you had the questions you had been using in the school, and that the doctor drew his paper from those questions you had marked.

Q. But if I had borrowed the book from him, how then? A. I think it will apply either way.

Q. If he had marked it in the margin it would show that he considered them important questions? A. If I marked it I would consider it an important point.

Q. But he might not form questions on it? He might have marked it at some previous examinations, and used these for questions, and if I had drilled on these points I would be quite astray? Is it not possible that these marks refer to a previous examination if I borrowed a book from him with marks on the margin in *fac simile*, I suppose? A. They were marks of some kind—marks opposite certain questions.

Q. You do not mean certain questions—was it a book on Natural Philosophy? A. I think it was Davison's Natural History, with the questions arranged in order in the back part of the book. I think these were the questions which were marked with a plus mark.

Q. Did I say "a plus mark"? A. Or a mark of some kind.

Q Did I say the questions were marked; or that there were marks in the book? A. You said there were certain questions marked.

Q. Might these not be questions which he had marked in a previous examination. A. I could not say; I am not certain whether they were or not.

Q Have you ever borrowed a book with marks in it? A. I have.

Q. And lent books with marks? A. I have.

Q. And did not think anything of that? A. If I receive a book with a mark in it, I look at the question particularly, because I expect that there is something to be brought out, and I want to find out the reason why that person marked that question.

Q. You might get a book with marked questions in it, but those questions would not necessarily be asked in an examination. A. I would not know.

Q. Do you recollect that little book of Davison's? A. I do.

Q. How many questions are there altogether in the book? about? A. I never numbered them up.

Q. Guess? A. My impression is there would be a hundred. There are two lists—about one hundred in each list; there might be less or more.

Q. In teaching would you not go over the whole of these questions with your pupils? A. I do not know but that I should.

Q. In preparing pupils for the examination, would you go over all the questions out of the book? A. I think I should.

Q. What would be the particular use of any marked ones, when you would go over them all? A. Well, there might be a stress put on these marked ones—that might be the impression to be drawn.

Q. What do you mean by particular stress? A. That they might be trained more thoroughly. That more prominence might be given to those marked questions.

Q. That these would be the most important questions; but still, out of one hundred questions, it would not be very difficult to get up more—the whole book does not number more that one hundred pages? A. I think it is something more than a hundred.

Q. So the whole book would not amount to anything to get up in a couple of evenings? You would get it up altogether in a couple of evenings? A. Perhaps, if I did not study anything else, I might possibly get the book up; that is, if I gave myself up and put myself right on the stretch to learn it.

Q. In two evenings, doing nothing else, you would get it up? A. It would depend upon how long I gave to it. I think I could in two or three evenings. I would rather have more time.

Q. Then marked questions would not be much use? A. I might forget it again, but if particular parts were drawn out to me I might retain them in my mind better. I think it would be possible to learn it, in that time, if I put myself right down to it. I think I could learn the majority of the questions in it if I thought there was great importance in it; but, if not, I would not undertake to put the stress on.

Q. So the book was a little book, that in two or three evenings anyone could get up to answer every question? A. That was the book—I had the impression— was the one referred to.

Q. That is the impression you have—that in two or three evenings a person could get it up? A. If he did nothing else, and learned to get it off by rote—not generally.

Q. To answer in an examination? A. I think it might be done.

William Greenwood Brown affirmed.

By Mr. Davin.

Q. You are a student in Hamilton? A. Yes.

Q. Did you attend the session of the Normal School for 1874? A. I did.

Q. Did you attend any lectures of Mr. Kirkland? A. I did.

Q. What lectures? A. Lectures in Chemistry, Philosophy and Physics, and Natural History, those were the important ones.

Q. Look at that book, is it your book? A. It is.

Q. A note-book used by you while attending the lectures of Thomas Kirkland? A. Yes.

Q. While attending the lectures did you make any notes that are there put down in questions? A. I did.

Q. Why did you put down those questions? A. I put them down because I considered them important ones.

Q. Why did you consider them important? A. Mr. Kirkland gave them, and told us that they were important.

Q. How long before the examination did Mr. Kirkland give you those questions A. I think in the neighbourhood of a month.

Q. Why did you preserve those questions? A. Because I thought them important, and that it was important to get up answers for them.

Q. Was there anything peculiar in the mode of giving those questions on the part of Mr. Kirkland? A. Well, somewhat. I think the students understood they were very important, and we were required to get up answers for them.

Q. Was there anything peculiar in the manner in which Mr. Kirkland gave you those questions? A. There was, inasmuch as we were given to understand, that they were important questions, and to be sure to look up the answers for them.

Q. Were they given to you by word of mouth, or in writing, or in what way? A. I think that the Chemistry questions were written out and given to us; we were to take them home, copy them off, and return the paper.

Q. Did Mr. Kirkland say anything further to you in regard to those questions that he had given? A. Only this, that we need not study the subject any further than to prepare answers to those questions?

Q. Did you study the subjects any further? A. I did not.

Q. Are you aware whether your fellow students studied them any further? A. I think they did not.

Q. Did Mr. Kirkland say anything further to you about those questions? A. Only that they took us over all the ground necessary for the Examination as he thought.

Q. Did he use any language more emphatic than that? A. He might have used more emphatic language, I do not exactly remember on which paper—on Chemistry or Physics; he went through. He said he would guarantee that it would take us over the ground.

Q. Did you go up for your examination for Public School teachers in June, 1874? A. I did.

Q. Where was the examination held? A. In the Normal School.

Q. At that examination you received certain questions in Chemistry. Are these the questions which you received? A. I suppose so, from the date and as far as I can recollect the nature of the questions.

(Normal School Examination Papers, June, 1874, put in and marked Exhibit C.)

Q. When these questions were given to you and your fellow students, did anything occur when the Examination Papers were distributed to you in the Examination Hall? What occurred before you wrote anything? A. Well, the students seemed to be struck in the first place, I think—I was myself at least—with the similarity existing between the questions on the paper and those given.

Q. Did anything occur on the part of your fellow students that would lead you to infer that they were struck? Did they do anything? A. They looked at each other and smiled.

Q. Did they do anything further than smile? A. They endeavoured to conceal their laughter from the gentlemen presiding.

Q. After the examination was over, was there any talk amongst your fellow students as to the similarity of the paper? A. There was.

Q. Was it a common talk? A. It was.

Q. Turn up the paper in Phyics of June, 1874—You attended that examination for Physics? A. I did.

Q. Did anything strike you, when you got that paper in your hand, in regard to the teaching? A. I do not think there was.

Q. You were examined afterwards at Whitby, in regard to Physics? A. I was.

Q. What occurred then? A. I did not notice any similarity.

Q. Did you notice any similarity between the June Papers and the Questions you got from Mr. Kirkland in Physics then? A. Yes, I noticed a similarity.

Q. You also got Chemistry Papers in July, 1874, at Whitby? A. I did.

Q. Would you turn to Question three in the July Paper of 1874, on Chemistry?

(Povincial Examination Papers of July, 1874, put in and marked Exhibit D.)

By the Commissioner.

Q. When was the Whitby Examination? A. In July.

By Mr. Davin.

Q. I want you to look at the Examination Paper for July, 1874—the Whitby Paper. Look at Question 3; read that question? A. It is as follows:—"How may an aqueous solution of ammonia be formed from chloride of ammonium? Describe the process and represent the chemical action by means of an equation."

Q. Turn to your note book, Question 6, page 66; read it? A. It is as follows:—"How is ammonia obtained? Give the derivation of the name and express the reaction by an equation. What are its properties? How would you detect the presence of ammonia (1) pure (2) in combination with some other substance."

Q. Are these two questions practically the same? A. Parts of them are.

By the Commissioner.

Q. What parts do you mean are? A. The first part.

By Mr. Davin.

Q. Are these Questions the same? A. They are, only the question in my note-book contains a little more.

By the Commissioner.

Q. You mean that the whole of the Question in the July Paper, is contained in the one in your note-book? A. Yes.

By Mr. Davin.

Q. Look at Question 4, in the Paper; read it? A. It is as follows:—"How is carbonic acid made? Give the equations representing the reaction. Describe fully what takes place when a stream of carbonic acid gas is passed into lime water to saturation; also, what occurs when the liquid so produced is boiled? How would you prove that carbonic acid really consists of carbon and oxygen in the proportion stated in the formula?"

Q. Turn to your note-book; question 7? A. It is as follows:—"How would you detect the presence of a carbonate? What takes place when carbonic acid is passed into lime water to saturation?"

Q. Are these questions the same? A. I think so. The question on the paper though, is rather fuller than this here.

Q. Take question 5? A. It is as follows:—"5. Describe the manufacture of sulphuric acid? A vitrol maker prepares ten tons of vitrol of specific 1.4, containing 80 per cent. of acid; how many tons of pyrites containing 40 per cent. of sulphur must for this purpose be burnt? Suppose 5 per cent of the theoretical yield of sulphur remained unburnt in the pyrites, what would be the difference in the production of the sulphuric acid?"

Q. Read the question in your note-book? A. It is as follows:—"How is H2, SO4, manufactured? Explain the reaction by an equation. What are its properties and uses, and explain fully how you would detect its presence in any form in a solution?"

Q. Read question 10? A. It is as follows:—"10. How much H2, SO4, could you obtain from a ton of iron pyrites?"

Q. Is there anything more than the question there, in your note-book? A. I do not think that there is any more.

Q. Have you worked out the question? A. The question is worked out.

Q. Why did you work out that question especially then? A. I cannot recollect. I suppose it was because it was important.

Q. Look at No. 6 in the Examination Paper? A. It is as follows:—"A few grains of white arsenic are put into an ounce or two of soap, state as fully as you can how you would proceed to detect its presence there?"

Q. Look at the question in your note-book? A. It is as follows:—"Describe minutely Marsh's test for arsenic, and state all the precautions necessary in making the experiments.

Q. Is the answer written out? A. Yes.

Q. Is that the same question as No. 6 in the Examination Paper? A. I think it is about the same.

Q. Look at question 7 in the Examination Paper? A. It is as follows:—"What are the sources of iodine? How is it prepared? Describe the properties of iodine. How would you proceed to detect the presence of a soluble (*a*) chloride, (*b*) iodide, (*c*) fluoride, present single in a liquid?"

Q. Look at your note-book, page 76? A. "State generally how iodine may be obtained, and how it may be detected in any compound?"

Q. Are those questions the same? A. The question in my note-book is not as full as that in the Examination Paper.

Q. With that exception, is it the same? A. It is.

Q. Look at question 8 in the Examination Paper. A. It is as follows:—"Classify the common metals according to their equivalency. Give the formula of the characteristic oxide, chloride, and sulphide of each."

Q. Look at your note-book, page 78? A. "Classify the common metals according to their equivalency."

Q. Look at page 79? A. "Give the formula of the most characteristic oxide and sulphate of potassium, iron and copper."

Q. Are these the same as question 8? A. Just about the same.

Q. Turn to No. 9 in the same Examination Paper? A. It is as follows:—"What is the most important ore of tin, and how is the metal extracted therefrom? How is the presence of tin in a solution detected?"

Q. Read question 9. page 81 of your note-book? A. "How is tin obtained? How would you test the presence of a compound of tin in any solution?"

Q. Look at question 12, page 72 of your note-book? A. It is as follows:—"Name and give the composition of the workable ores of tin, and the method of obtaining tin from its ores, and the principles involved."

Q. Are these two questions, and question 9 in the Examination Paper the same? A. I think they amount to about the same.

Q. Look at the Paper for June 1874, the Chemistry Paper? Read the first question? A. It is as follows:—"What is ozone? How is it prepared, and what are the Physical and chemical differences between it and oxygen?"

Q. Look at question 2, page 63, of your note-book? A. It is as follows:—"What is ozone? How is it obtained? and what are its properties?"

Q. Are these, question one, and the question in your note-book, the same? A. They are with one exception. It does not ask in my note-book, the difference between it and oxygen.

Q. Are they practically the same questions? A. I think so.

Q. Now, look at No. 2, in the Examination Paper? A. It is as follows:—"You have given you a few iron nails, some pure tinfoil, copper filings and a little granulated zinc, with concentrated nitric acid, and distilled water: state what chemical changes you can produce with these materials, and express the change by equation."

Q. Now, turn to your note-book, question 5, page 65? A. It is as follows:—"How is commercial nitric acid obtained? How would you detect the presence of a nitrate?

Q. Do both these questions cover the same ground? A. The question on the paper is rather fuller than this, otherwise they are practically the same.

Q. Take question 3? A. It is as follows:—"How would you obtain evidence of the presence of ammonia whether pure or combined, in a given solution?

Q. Read Question 6, in your note-book, page 66? A. It is as follows:—"How is ammonia obtained? Give the derivation of the name and express the reaction by an equation. What are its properties? How would you detect the presence of ammonia (1) pure (2) in combination with some other substances?"

Q. Are the two questions practically the same? A. The question in the note-book contains all that is in the question or the Paper.

Q. Look at Question 4? A. It is as follows:—"We inhale air and throw off carbonic acid from our lungs: How would you show experimentally that the amount of CO_2 in a given volume of air which comes from our lungs is far greater than the quantity of carbonic acid which is found in an equal volume of the air which we inhale?"

Q. Turn to page 68, in your note book, Question 7? A. It is as follows.—"How would you detect the presence of a carbonate? What takes place when CO_2 acid is passed into lime water to saturation?"

Q. Look at page 74, question 2? A. It is as follows:—"If a vessel contained a mixture of N and CO_2, how would you proceed to measure the N and how to weigh the quantity of CO_2? If you wanted to determine the volume of CO_2, how would you do it?"

Q. Do the two questions cover the same ground? A. I think they do.

Q. Look at question 5? A. It is as follows:—"Describe the process for the manufacture of sulphuric acid, with an explanation of the reactions. Describe and explain the reaction by which you would identify it."

Q. Look at question 8, page 69, in your note-book? A. It is as follows:—"How is H_2SO_4 manufactured? Explain the reaction by an equation. What are its properties and uses, and explain fully how you would detect its presence in any form in a solution?"

Q. Are these questions the same? A. They are.

Q. Look at question 6, in the Examination Paper? A. It is as follows:—"A specimen of spring water is supposed to contain sulphuretted hydrogen? How would you ascertain whether sulphuretted hydrogen is really present?"

Q. Look at question 3, in your note-book? A. It is as follows:—"What are the usual impurities of spring water? How are they detected, and how are they removed?"

Q. They cover the same ground? A. They do.

Q. Look at question 7, on the Examination Paper? A. It is as follows:—"By what experiment would you prove that common phosphorus, and red or amorphous phosphorus are allotropic modifications of the element phosphorous?"

Q. Look at question 1, page 73, of your note-book? A. It is as follows:—"State in general terms how phosphorus is prepared? In what two forms does it occur? And show that these two forms are virtually the same."

Q. Are both these questions the same? A. I think so.

Q. Look at question 8? A. It is as follows:—"Describe Marsh's test for arsenic, with its modifications and fallacies."

Q. Look at question 11, page 71, of your note-book? A. It is as follows:—"Describe minutely Marsh's test for arsenic, and state all the precautions necessary in making the experiment."

Q. Have you worked out the answer to that? A. Yes.

Q. Are these questions the same? A. They are.

Q. Look at question 9 in the paper? A. It is as follows:—"State the composition of the ordinary ores of iron, the chemical principles involved in their reduction, and the composition of cast iron and steel? How would you distinguish iron from copper, chemically?"

Q. Look at question 7, page 79, of the note-book? A. It is as follows:—"Give the formula of the most characteristic oxide and sulphate potassium, iron, and copper?"

Q. Do these two questions cover the same ground? A. Just about the same.

Q. Read question 10? A. It is as follows:—"How would you treat a silver coin containing a small quantity of gold in order to extract the latter metal from it?"

Q. Look at page 82 of your note-book, question 10? A. It is as follows:—"You have a mixture containing silver and potassium. How would you separate them?"

Q. Look at question 8, page 80? A. It is as follows:—"How is silver obtained, and state the principles involved?"

Q. Do these two questions cover the same ground as question 10 on the Examination Paper? A. I think they do.

Q. Read question 11? A. It is as follows:—"100 cubic centimetres of ammonia gas are completely decomposed by a series of electric sparks yielding 200 centimetres of mixed hydrogen and nitrogen; an excess of oxygen is next added, when the volume of the mixed gases is found to amount to 290 cubic centimetres; the mixture is now exploded, when 65 cubic centimetres of gas remain. Show from these data that the symbol of ammonia is NH3.

Q. Read question 11, page 83 of your note-book? A. It is as follows:—"100 cubic centimetres of N H 3, completely decomposed by a series of electric sparks yielding 200 cubic centimetres of mixed hydrogen and nitrogen; an excess of oxygen is next added, when the volume of mixed gases is found to amount to 290 cubic centimetres; the mixture is now exploded, when 65 cubic centimetres of gas remain. Calculate from these data the composition of NH3."

Q. With the exception of the word "shew" for "calculate," are these two questions literally the same? A. They are.

Q. Turn to the paper on Physics for July 1874; read the first question? A. It is as follows:—"How would you cool a mixture in the absence of ice or snow? Give the theory of your process."

Q. Turn to question 6, page 87 of your note-book? A. It is as follows:—"How would you cool a mixture without either ice or snow? Explain clearly the principle involved."

Q. Are these two questions the same? A. They are.

Q. Read question 2, in the Examination Paper? A. It is as follows:—"Describe the relation of the *heat* spectrum to the light spectrum."

Q. Look at question 7, page 87 of your note-book? A. It is as follows:—"Compare the heat spectrum and the light spectrum."

Q. Are these two the same? A. They are.

Q. Read question 3? A. It is as follows:—"What is the Thermal unit generally adopted? A pound of mercury at a temperature 100° C. is immersed in a pound of water at 40° C. How many degrees will the temperature of the water be raised, taking the specific heat of mercury at ·03?"

Q. Look at question 3, page 86 of your note-book? A. "How is heat measured? What is the Thermal unit usually adopted? What do you mean by the mechanical equivalent of heat?"

Q. Look at question 4 in your note-book? A. It is as follows:—"What do you mean by specific heat? A pound of mercury at 100° is immersed in a pound of water at 40°. How many degrees will the temperature of the water be raised, the S. heat of mercury being 1-30?"

Q. Do these questions cover the same ground? A. They involve the same principles.

Q. Read question 6? A. It is as follows:—"Explain by a diagram the compound microscope.

Q. Look at question 10, page 88 of your note-book? A. "Describe the common microscope."

Q. Read question 7? A. It is as follows:—"Describe an experiment to illustrate electrical induction. What is the phenomena known as the "return shock?" Explain it.

Q. Read question 5, page 89 of your note-book? A. It is as follows:—"What is meant by electrical induction?"

Q. Read question 7, page 89 of your note-book? A. It is as follows:—"What is meant in treatises on electricity by the return shock?"

Q. Is the question 7 on the Examination Paper and that question in your note-book the same? A. About the same.

Q. Read question 8? A. It is as follows:—"If the point of a fine needle in metallic connection with the prime conductor of an electrical machine in action be brought near a candle the light will probably be extinguished. Explain clearly the cause of this?"

Q. Read question 9, page 90 in the note-book? A. It is as follows:—"If a point is brought near the prime conductor of an electric machine what effect is produced?"

Q. Read question 10, on the same page? A. It is as follows:—"If a lighted candle be brought near the point, what is the effect, and what is its cause?"

Q. Are these questions the same as the question on the Examination Paper? Do they cover the same ground? A. I think they do.

Q. Read question 9? A. It is as follows:—"Describe in general terms the magneto-electric machine?"

Q. Look at question 15, page 91, of the note-book? A. "Describe the magneto-electric machine, and the principle on which it acts?"

Q. Take your note-book. Are these questions in your note-book, which I have asked you about, the only questions you have in that note-book about Physics or Chemistry? Are these the only questions that are impressed on your mind?—the only ones you find there? A. Yes.

Q. In Chemistry, from page 63 to page 83—how many questions have you? A. Twenty-one.

Q. Do you know who was the examiner in June, or July, 1874, in Chemistry and Physics? A. I do not.

By the Commissioner.

Q. How many questions in Physics are there in the book? A. Twenty-seven, I think.

By Mr. Davin.

Q. You know something of Chemistry, I suppose that you have studied it? A. Yes.

Q. Is it a wide subject? A. It is considered so.

Q. Might hundreds of questions be given on Chemistry—all different? A. Yes.

By Mr. Kirkland.

Q. Take the June Paper, of 1874, on Chemistry, and the first question—"What is Ozone? How is it prepared; and what are the physical and chemical differences between it and Oxygen?

Q. If you were teaching Chemistry, could that question be left out fairly? You were at the Normal School, in the Second Division, in 1873? A. Yes.

Q. You attended lectures in Chemistry then? A. Yes.

Q. Then in 1874, again? A. Yes.

Q. Two lectures a week, was it not? A. Something like that.

Q. Was there practice in the laboratory then? A. Yes.

Q. About three hours a week? A. Yes.

Q. And Chemistry and Physics, two lectures a week? A. I do not remember the number.

Q. Could you leave that question out in teaching Chemistry fairly? If you were teaching, would you leave it out if you were going to give a series of points to be got up? A. I do not know that I would leave it out.

Q. Question No. 2:—"You have given you a few iron nails, some pure tin foil, copper filings, and a little granulated zinc, with concentrated nitric acid, and distilled water; state what chemical changes you can produce with these materials, and express the change by equation." Would you read the question which you said was the same? A. It is as follows:—"How is chemical nitric acid obtained."

Q. Point out in the question in the printed paper, the part that corresponds with that? A. I am not certain.

Q. You know Chemistry well enough, either to point it out or admit that you committed perjury? A. I have said, that I thought they were about the same.

Q. Point out the slightest similarity between the questions? A. I should, as far as I can recollect, say the first part of the question.

Q. If it speaks of preparing nitric acid directly or indirectly, point it out? A. There is nothing in words.

By the Commissioner.

Q. Where do they cover the same ground? Why do you form that opinion? A. I have not studied Chemistry since I was here, and as far as I recollect, I should think they cover the same principles.

By Mr. Kirkland.

Q. State your reasons? A. I cannot begin to explain here. I merely told what I thought.

By the Commissioner.

Q. Why do you think that they cover the same ground? Or do you still think, that they cover the same ground? A. I am not certain of it.

By Mr. Kirkland.

Q. What are you not certain of? A. I am not certain that commercial nitric acid would be formed by these different substances.

Q. You are given the nitric acid, and you are asked what effect it has on other substances; are you not certain, that it is not the same as preparing commercial nitric acid? A. I am not certain.

Q. You are not certain, that when nitric acid is given to you, and you are asked its effect, it is not the same as to prepare it? A. Of course that is not the same as preparing nitric acid.

Q. What do you mean by their covering the same ground?—that if a person knew the one, he could answer the other? A. Something like that.

Q. If a person knew the effect of nitric acid on tin foil, could he prepare nitric acid? A. Perhaps, they would want something more than that.

Q. Do you not know that nitric acid is prepared from saltpetre and sulphuric acid? A. Yes.

Q. And that knowing the one, would not assist one in the least to answer the other? A. I suppose it is.

Q. Read the next part of the question in your note-book? A. It is as follows:—"How would you detect the presence of a nitrate?"

Q. Shew the part of question No. 2, which corresponds to that in any way? A. "State what chemical changes you can produce with these materials?"

Q. Is there any connection between nitric acid acting on iron nails, and a nitrate? A. You can detect the presence of a nitrate with one of these ingredients.

Q. Saltpetre is a nitrate; shew any part of this question that would enable you in any way to detect that? A. Copper.

Q. How would you detect a nitrate by means of copper? A. Perhaps I may be mistaken between nitrate and nitric acid; Nitric acid you would detect by copper.

Q. How would you detect a nitrate; state the part of this question, which enables you to do that? A. There is nothing in the question stating how you would detect a nitrate; I may have mistaken nitric for nitrate.

Q. What is the next part in your notes? A. There is nothing more on that question.

Q. Have you anything more in your notes bearing on this question at all? Is there not something as to what are the tests for nitric acid? A. I do not see any other question.

Q. Then you have no question in your notes, bearing directly or indirectly, on that question, or covering the same ground? A. There is scarcely a similarity in that question, at any rate.

Q. Then you swore what was not true? A. I did not mean to do so.

Q. Now, the third question:—"How would you obtain evidence of the presence of ammonia, pure or combined, in a given solution?"

Q. Read the question you have, that you think corresponds with that? A. How is ammonia obtained? Give the derivation of the name, and express the reaction by an equation. What are its properties? How would you detect the presence of ammonia, (1) pure, (2) in combination with some other substance."

Q. Then the part of your question that corresponds to that is—? A. How would you detect the presence of ammonia?"

Q. In this case, it is asked to be detected in a solution; and there is nothing about that in yours? A. "(1) pure, (2) in combination with some other substance?"

Q. How would you detect it in a solution, from your notes? A. There is nothing in my notes stating anything about a solution.

Q. You know enough about Chemistry to know that detecting a substance in a pure or solid state, would not be detecting it in a solution? A. I might have known enough; but I did not consider so in looking over the papers.

Q. You thought that because "Ammonia" occurred in each, they were the same? There is nothing at all but the word, "ammonia?" You were asked about the preparation, the properties and the test? A. How to detect it.

Q. Whether pure or combined? A. Yes. Might it not be in a solution, and yet be combined?

Q. Yes. In that case, you could not detect it in a solution the same as if it were not in a solution? If you only knew your note and nothing more, could you answer that question? A. I think probably, that if I understood all connection with the questions asked here, I would be able to tell.

Q. Why do you think that you would be able to tell? A. I merely think so.

Q. Why? A. I think you would have enough knowledge.

Q. If you have not the knowledge, why did you swear that it was so? A. I think that if you understood the answers, and all that is asked here, you would know.

Q. Tell how you would do it. A. You are testing my knowledge, now, on Chemistry. I think it is so—I would suppose so.

Q. How do you know? A. I do not know for a fact. I would suppose so.

Q. Why would you suppose so? A. From the number of questions given there; and they are quite exhaustive, I think.

Q. It would necessarily follow, that the subject of Ammonia was thoroughly exhausted? A. It might follow.

Q. Could I have taught Chemistry and left that question out? A. I do not think so.

Q. And the questions which I have asked on Ammonia are the leading questions that are always asked—preparation, properties and tests? A. Yes. Those are leading questions.

Q. In asking that question, I asked an ordinary question—a question which every one teaching Chemistry must ask? A. I should think so.

Q. Question 4 :—"We inhale air, and throw off carbonic acid from our lungs."

Q How would you show experimentally, that the amount of C.O2. in a given volume of air which comes from the lungs, is far greater than the quantity of carbonic acid which is found in an equal volume of the air which we inhale?" Read your note, which shows that you could answer that question? A. How would you detect the presence of a carbonate?"

Q. What part of the question corresponds to that? A. I do not see anything.

Q. The next part? A. What takes place when carbolic acid is passed into lime-water to saturation.

Q. What part of the question corresponds to that. A. "If a vessel contained a mixture of nitrogen and carbonic acid, how would you proceed to measure the nitrogen, and how to weigh the quanity of carbonic acid?"

Q. Read the first question again? A. "How would you detect the presence of a carbonate?"

Q. Is there anything that corresponds to that? A. I do not think that there is.

Q. The next? A. "What takes place when carbonic acid is passed into lime-water to saturation?"

Q. What part of the question corresponds to that? A. I do not see any part, that corresponds to that.

Q. What did you read that question for at all? A. The gentleman asked me to read it.

Q. Has it any connection with this question at all? A. I do not know that it has.

Q. Do you know that it has not? A. I do not think it has.

Q. Your next question? A. "If a vessel contained a mixture of nitrogen and carbonic acid, how would you proceed to measure the nitrogen, and how to weigh the quantity of carbonic acid?"

Q. What is the connection between that and breathing carbonic acid from the lungs? A. I think that the results from that would be the same as this: "How would you show experimentally that the amount of carbonic acid in a given volume of air which comes from the lungs is far greater than the quantity of carbonic acid which is found in an equal volume of the air which we inhale."

Q. State from your note, how you would proceed to answer that question? A. The questions, I see, are not identical. You, perhaps, would measure the difference in the amount of the carbonic acid No, they are not the same.

Q. Question No. 5 :—"Describe the process for the manufacture of sulphuric acid, with an explanation of the reactions. Describe and explain the reaction by which you would identify it." Read your question corresponding to that? A. "How is sulphuric acid manufactured? Explain the reaction by an equation?" That is the same. "What are its properties and uses, and explain fully how you would detect its presence in any form in a solution?"

Q. That one in substance is the same. Could you leave that question out in teaching Chemistry? A. You could, I suppose, but you would not be likely to.

Q. It is one of the most important substances in Chemistry, is it not? A. Yes.—Very important.

Q. These are leading questions, that I gave, preparation, properties, tests, uses? A. It was very important, because I know we were asked to write out the answer to that question three or four times.

Q. Sixth question :—"A specimen of spring water is supposed to contain sulphuretted hydrogen? How would you ascertain whether sulphuretted hydrogen is really pre-

sent?" Would your question correspond to that? A. It is:—"What are the usual impurities of spring water? How are they detected, and how are they removed?"

Q. That is the leading question on water, is it not? A. Yes.

Q. Is sulphuretted hydrogen a usual impurity of spring water? A. It is one of the impurities.

Q. Is it not a usual impurity? A. It depends a great deal upon what the country is like.

Q. Taking the word "usual" in its ordinary sense? A. That way, I do not know that it is in ordinary water.

Q. Water is only found in particular springs—there is none within fifty miles of where we stand, is there? Did you ever see it in water in your life? A. I think I have.

Q. Where? I cannot tell where.

Q. It is not a usual impurity in the ordinary sense of the word? A. It may not be.

Q. Is it not? A. I do not know. I think it is not a usual impurity.

Q. Then what part of your notes applies to that question? A. Nothing—only one of the impurities.

Q. But the word there is "usual"? A. Sulphuretted hydrogen is not mentioned in my notes.

Q. Your notes read, "usual impurities"? A. Yes.

Q. Sulphuretted hydrogen is not a usual impurity, and therefore no part of your notes applies to that question at all? A. If I were studying it I would take that as one of the impurities.

Q. One of the usual impurities? It does not mean—extraordinary—does your note correspond to that question? A. I would have thought that it corresponded with what knowledge I had of Chemistry.

Q. With what knowledge you have now? A. Not with what I have now, perhaps, because it is some time since I have studied it; but I thought that carburetted hydrogen was usual.

Q. It is not the same thing as sulphuretted? A. I was mistaken in the terms.

Q. You do not think so now? A. From your information, and what I recollect, I do not think so, I think that if a person were looking up the impurities of water, he would look that up also.

Q. No. 7: Read what you have corresponding to that? A. "State in general terms how phosphorus is prepared. What two forms does it occur in?"

Q. Nothing corresponding to that in the question? A. Yes: The two kinds of phosphorus.

Q. State in what two forms it occurs? A. It is almost the answer to it in this question—common and red phosphorus.

Q. That is not the object of asking this question? A. "And shew that these two forms are virtually the same."

Q. The last part of yours corresponds to this question? A. I think so.

Q. You could not teach Chemistry without teaching phosphorus, could you? A. No. You would not.

Q. If you asked questions on phosphorus at all, would that be the question, if you asked a question to cover the whole—preparation, properties, two forms, and the method of shewing that the one was the same as the other? A. I do not think it covers the whole.

Q. But any good question on phosphorus would include that, and more perhaps? A. I think so.

Q. Question No. 8, about Marsh's test for arsenic; is it your question? A. Name it—"Describe minutely Marsh's test for arsenic, and state all the precautions necessary in making the experiment."

Q. That is an ordinary question on Marsh's test, is it not? It is not quite the same? A. No,—not the same; but this question in my book would imply all in the other, I think.

Q. What are "fallacies?" It means that it leads you to believe that there is arsenic present, when there is not:—shew where that is in your question? A. There is nothing there except the precautions.

Q. "All the precautions" is only the care in making the experiment:—it has nothing to do with the results to which it leads? A. I do not see anything else corresponding.

Q. "Modifications"—what part of yourquestion corresponds to that? A. I do not see anything here that corresponds to that.

Q. Could you teach arsenic—if you lectured on arsenic at all, could you avoid asking that? A. I do not think so.

Q. Question No. 9:—"state the composition of the ordinary ores of iron." What have you that corresponds to that? A. This:—"Give the formula of the most characteristic oxide and sulphate of potassium, iron and copper."

Q. What part of that corresponds to this? A. "state the composition of the ordinary ores of iron."

Q. The part that corresponds? A. Give the formula for it.

Q. For what? A. For iron.

Q. Read your note? A. "Give the formula of the most characteristic oxide and sulphate of potassium, iron and copper."

Q. "The most characteristic oxide"—the question contains a great deal more than is here? A. It would be oxide and sulphate of iron.

Q. Which of these are ordinary ores?—or is there any oxide and any sulphate in the ordinary ore? Which of the ordinary ores is an oxide, or a sulphate? A. Oxide.

Q. Iron was never obtained from its sulphate, it is a commercial product? A. There is a certain oxide of iron.

Q. Is that an ore? what is iron obtained from? A. From ore.

Q. State the characterestic oxide of iron from which iron is obtained? A. I see very little resemblance; the only thing being, that in reading up the answers for this, I think you would come across the answers for the other, that is all.

Q. You withdraw the question? A. I withdraw it.

Q. The second part—"the principles involved in their reduction." Read the part of your note-book that corresponds to that? A. There is nothing in it the way I understand the question.

Q. "The composition of cast iron and steel," read what corresponds to that? A. There is nothing.

Q. "How to distinguish iron from copper, chemically?" A. There is nothing corresponding to that.

Q. You withdraw the whole of that question? A. Yes; but I would like to say, that I did not understand it when reading it, the way I do now. I thought it was, give the formula for iron and copper.

Q. Question number 10—a silver coin and gold? A. "You have a mixture containing silver and potassium; how would you separate them?

Q. What has that to do with it? A. The difference is,—in one place it is silver and gold; and in the other silver and potassium.

Q. Would you separate silver and potassium the same way as silver and gold? A. I do not know, but I think so.

Q. Do you recollect that potassium is thrown on water, and all that is necessary to do, would be to throw the whole thing into water? A. Yes.

Q. Would that answer the purpose, and separate the silver and gold? A. No, it would not.

Q. Has that anything at all to do with this question? You withdraw this question? A. Yes.

Q. Then you have another question,—"How is silver obtained, and state the principles involved?" Has that anything at all to do with this question in the Examination Papers? A. No.

Q. The last question is identical, I think, on both? You marked those as identical, did you do it yourself, or did some one else? A. I did not do it.

Q. Who did it for you? A. I do not know for certain.

Q. To the best of your knowledge? A. I think Mr. Dickson.

Q. What Mr. Dickson? A. Of Hamilton.

Q. Mr. George Dickson, head master of the Hamilton Collegiate Institute? A. Yes.

Q. In July, 1874, the Chemistry Paper, the third question, Have you anything corresponding to that? "How may an aqueous solution of ammonia be formed from chloride of

ammonium? Describe the process, and represent the chemical action by means of an equation." Read your note? A. "How is ammonia obtained?"

Q. Is that the same as an aqueous solution of ammonia? A. Not the same?

Q. And yours does not say what it is to be obtained from? A. No; only it is easy to be obtained from that.

Q. The question is not the same? A. Not the same, that far.

Q. The next part? A. "Give the derivation of the name."

Q. Anything corresponding to that? A. No.

Q. Anything more? A. "And express the reaction by an equation."

Q. That is in substance the same? A. Yes.

Q. Anything more? A. "What are its properties? How would you detect the presence of ammonia?"

Q. That is a full question on ammonia, is it not? A. Yes.

Q. And yours is part of it? A. Yes.

Q. Could you teach Chemistry without asking that question? A. The one I have in my note-book?

Q. Yes. A. You would not be likely to.

Q. You could not teach Chemistry without asking it? It is an important subject? A. It is an important question.

Q. The fourth question:—"How is carbonic acid made? Give the equations representing the reaction? Describe fully what takes place when a stream of carbonic acid gas is passed into lime-water to saturation; also, what occurs when the liquid so produced is boiled? How would you prove that carbonic acid really consists of carbonated oxygen in the proportion stated in the formula?" What have you corresponding to that? A. "How would you detect the presence of a carbonate?"

Q. What part of this question corresponds to that? A. I do not see anything.

Q. What is the next? A. "What takes place when carbonic acid is passed into lime-water to saturation?"

Q. Is that all you have? A. That is all, I believe.

Q. There are five questions asked in that, and you have one of them? A. Yes.

Q. You withdraw four-fifths of that question? A. There is only one of the five questions that corresponds.

Q. You withdraw the four-fifths? A. Yes.

Q. And that one which you have, occurs in every chemistry? A. As far as I know -

Q. Number 5, describe the manufacture of sulphuric acid; what have you corresponding to that? A. "How is sulphuric acid manufactured?"

Q. What more? A. Explain the reaction by an equation. What are its properties and uses? and explain fully how you would detect its presence in any form in a solution."

Q. You have a full, complete question on carbonic acid? A. Yes.

Q. Could a teacher teach Chemistry without asking that? A. No.

Q. Have you the rider? A. Yes. "How much sulphuric acid could you obtain from a ton of iron pyrites?"

Q. You have really nothing at all corresponding? A. The questions are not the same, there is somewhat the same principle in both.

Q. Where? Shew me the similarity between the two at all except that the word "pyrites" occurs in both, and the word "ton?" A. How would you obtain it from a ton of pyrites, this question is ten tons.

Q. Specific gravity—giving the percentage of acid, and three or four other things? A. With those other conditions in, of course.

Q. There is no correspondence between them? If you could work the question in your notes, you could work this one? A. Not unless you knew more than enough to work the other.

Q. You withdraw the rider to five? A. Yes.

Q. Sixth question:—"A few grains of white arsenic are put into an ounce or two of soup, state as fully as you can how you would proceed to detect its presence there?" Do you think that Marsh's test is the one that a chemist would apply in a case of that kind, where there is a great deal of organic matter mixed with the arsenic? A. I do not, I think it would be something the same.

Q. You withdraw that question? A. The questions are not the same.

Q. Therefore when you stated they were, you made a mistake? A. Yes, I suppose I made a mistake, I was under the impression that it could be obtained in the same way.

Q. No. 7. "What are the sources of iodine? How is it prepared? Describe the properties of iodine? How would you proceed to detect the presence of a soluble (*a*) chloride, (*b*) iodide, (*c*) fluoride, present single in a liquid?" What have you corresponding to that? A. This—"state generally how iodine may be obtained, and how it may be detected in any compound."

Q. Is that all? A. That is all in this question.

Q. What part of that question corresponds to this question. It consists of six questions, how many of those have you got? A. The first is, "State generally how iodine may be obtained":—that corresponds with one. How may it be tested in any compound."

Q. "What part of this question corresponds with that? A. There is nothing.

Q. Could you teach Chemistry without teaching how iodine is prepared. A. No.

Q. Question No. 8:—"Classify the common metals according to their equivalency. Give the formula of the characteristic oxide, chloride, and sulphate of each." What have you corresponding to that? A. "Classify the common metals according to their equivalency. Give the formula, of the most characteristic oxide and sulphate of potassium, iron, and copper."

Q. Does that correspond? A. I think so.

Q. Is potassium a common metal? A. Yes, and the question in the note book is "Classify the common metals."

Q. Is there anything about sulphate in this question? A. No. It is sulphide.

Q. You have nothing on the Chloride? A. There is nothing mentioned here about the Chloride.

Q. What are the common metals? A. Iron and copper, these are the only two mentioned here.

Q. How many common metals are there? Zinc? A. Yes.

Q. Tin? A. Yes.

Q. And a great many others besides? So your note covers a very small part of the answer to this question? A. They are partially the same.

Q. How much—one-half? A. Scarcely a half.

Q. The 9th question:—"What is the most important ore of tin, and how is the metal extracted therefrom? How is the presence of tin in a solution detected?" A. "How is tin obtained?"

Q. What part of the question corresponds to that? A. "What is the most important ore of tin, and how is the metal extracted therefrom?"

Q. Is that the same? A. Not exactly,

Q. You have not got that then? "How is the presence of tin in a solution detected?" A. "How would you test the presence of a compound of tin in any solution?"

Q. You have a compound of tin—this is tin. Is detecting a compound, and detecting the metal the same? A. Not precisely.

Q. Is there any connection between detecting for a metal, and detecting for its compound? Generally are they not quite different? A. Sometimes I think that the compound is first broken up, and then it is detected.

Q. Made into something else? A. Yes.

Q. It does not follow, because you could test for a metal, that you could test for its compound? A. I do not know that it does.

Q. Then you have no answer to this question at all? A. I have also the question—"Name and give the composition of the workable ores of tin, and the method of obtaining tin from its ores, and the principles involved."

Q. You have one-half of that? A. Yes.

Q. That is the usual question asked on tin if one is asked at all; there is nothing unusual about it? It is the ordinary question? A. I think so.

Q. Is there a question in your notes, that is in this paper that is not a general book-work question? A. I think the questions are book questions.

Q. The ordinary questions that every teacher in Chemistry would ask, and in the form in which he would ask them? A. Yes, something the same form.

Q. Mr. George Dickson marked this paper the same as the preceding one? He had

your note-book, and made out all your questions? A. I think that is the way of it, as far as I know.

Q. You know pretty well; you believe that was the case; you believe that Mr. George Dickson marked these questions about which I have now asked you—marked the correspondence of the questions in your note-book to those on this paper.

By the Commissioner.

Q. Does the same remark apply to those as to the former paper? A. I think so.

By Mr. Kirkland.

Q. How did Mr. Dickson come to get the book from you? A. He asked me for it.

Q. When did he ask you for it? A. I do not know the exact date; it was some time after the summer holidays.

Q. Did he tell you what he was going to do with it? A. I do not recollect.

Q. Did he give you any reasons for asking for it? A. I thought it was for the purpose of bringing it before the investigation.

Q. It was after the holidays? Were you at Hamilton then? A. Yes.

Q. Did any letters pass between you and Mr. Dickson respecting this book or the subject at all? A. None.

Q. Did you mention to Mr. Dickson that you had a note-book containing these questions, or did he ask you for it? A. I was asked.

Q. Mr. Dickson asked you if you had a note-book? A. He understood first that I had it.

Q. How? A. Through another party.

Q. Who? A. A fellow-student.

Q. His name? A. Ratcliffe; I thought he knew it before, because among the students that were acquainted with the Normal School and teachers, it was customary to speak about the notes that we received,—quite a customary thing.

Q. I am not asking about conversations with Normal School students? A. This gentleman knew that I had it, and Mr. Dickson was informed of it through him.

Q. In Physics, for July, 1874, the first question is, "How would you cool a mixture in the absence of ice or snow?" A. I have,—"How would you cool a mixture without either ice or snow? Explain clearly the principle involved."

Q. You have that question? A. Yes.

Q. That is an ordinary book-work question, is it not? It occurs in ordinary books, does it not? A. Yes.

Q. In teaching freezing mixtures, you would expect that to be asked? A. Yes.

Q. Second question: "Describe the relation of the heat spectrum to the light spectrum?" A. I have, "Compare the heat spectrum and the light spectrum."

Q. That is a book-work question? A. It is very frequently asked.

Q. Have you seen it before in these papers? A. I do not recollect.

Q. What have you corresponding to the third question? A. This question begins:—"What is the thermal unit generally adopted?" I have—"How is heat measured? What is the thermal unit usually adopted?"

Q. What corresponds to that? A. Nothing.

Q. What is the next part of your notes? A. "What do you mean by the mechanical equivalent of heat.

Q. What corresponds to that in this? A. There is nothing.

Q. "What do you mean by specific heat?" What corresponds to that in this question? A. I do not see anything.

Q. What is the next? A. A pound of mercury at 100° is immersed in a pound of water at 40°. How many degrees will the temperature of the water be raised, the S. heat of the mercury being 1-30?

Q. That is the same in substance? A. Yes.

Q. Is it a common question—mercury and water? A. I think it is.

Q. The rider is the same in substance, but different in numbers? A. Some of the numbers are different.

Q. No. 6—"explain by a diagram the compound mieroscope?" A. I have—"Describe the common mieroscope."

Q. An entirely different thing. A. Yes.

Q. The common would not include the compound, would it? A. No.

Q. You withdraw that question? A. Yes.

Q. Question 7 :—"Describe an experiment to illustrate electrical induction. What is the phenomena known as the 'return shock?' Explain it." A. I have—"What is meant by electrical induction?"

Q. Is that the same as to describe an experiment, to illnstrate it? A. No, it is not the same.

Q. You withdraw that part of the question then? A. Yes.

Q. "What is the phenomena known as the 'return shock.'" A. "What is meant in the treatises on electricity, by the return shock."

Q. Is that a common question? A. It is quite common.

Q. Eighth question :—"If the point of a fine needle in metallic connection with the prime conductor of an electrical machine in action, be brought near a candle, the light will probably be extinguished. Explain clearly the cause of this." A. I have—"If a point is brought near the prime conductor of an electric machine, what effect is produced?"

Q. Is that anything like this? A. I think it is something the same.

Q. Which is the similarity? In the first case notice where the point is. It is on the electrical conductor. In your case, it is outside. Is there any similarity at all? A. That is different.—"If a lighted candle be brought near the point, what is the effect, and what is its cause?"

Q. Then you have the half of that? A Yes.

Q. You withdraw the half and leave the other? A. Yes.

Q. That experiment about a candle being brought near—is that a common experiment, that would be almost certain to be described by any one lecturing on the subject? A. I think it is; but I do not recollect.

Q. Ninth question :—"Describe in general terms a magneto-electric machine? A. I have—"Describe the magneto-electro machine and the principle on which it acts."

Q. Your question includes this and something more. That is a common question on a common subject, is it not? A. I think it is.

Q. Have you found any question on any of these subjects—any question in your notes, that is not what may be called, ordinary standard questions on Physics or Chemistry, asked over and over again? A. I do not know about being asked "over and over again" I do not know that there are any, not usually asked. They are the usual kind of questions.

Q. That any person lecturing on common questions, would give? A. They would be likely to give similar questions.

Q. I think you stated Chemistry is a very wide subject, and that you could ask a great variety of questions on it? Could you ask fairly a great variety of fair questions on it? Could you ask fairly a great variety of fair questions on it on the Normal School course,—could you ask very many of what are called good questions on the Normal School course as laid down in these papers, which consist almost altogether of the non-metallic elements and the leading metals? Is not that so? A. I do not know.

Q. Do you not notice that there are only a few metals, and those of the commonest kind? A. I have noticed that.

Q. Could you ask very many questions similar to those on your notes, such as Ammonia; how is it prepared? A. You could not ask many on that.

Q. The important substances—are they all enumerated? Are there fifty of what you would call important substances in the Chemistry of the Normal School course? A. I do not know for certain.

Q. What is your opinion? A. I should think that there would be that many.

Q. There would be more, would there? A. I do not know.

Q. Could you ask many questions such as would fairly be put on the Examination? You have twenty-one there. Could there be very many more that you have not got? A. I do not know. I suppose there could be more.

Q. But they would not be good ones? They would not be leading questions? They

would be out of the way questions? Do you not think so? A. I do not know that they would.

Q. Could you think of one? A. I do not know that I am bound to propound questions.

Q. Do not those twenty-one questions fairly cover the Norman School course? A. It depends on what the Norman School course is.

Q. You have stated it? A. I have stated what I noticed about some of the papers, but I do not know whether that is the whole course or not.

Q. Do these twenty-one questions fairly cover what you have noticed about the papers? A. I think they have fairly covered them.

Q. These questions that you say were given you in the class, and you think you were ground up in at the time of the Examination. You should have studied pretty well, should you not? A. Yes—better than I did.

Q. What per centage of marks did you have? A. 102 out of 150—that would be 68 per cent.

Q. Was that more than you were fairly entitled to, from your whole year's work? Is the work you obtained better? A. Not very high.

Q. Rather low than otherwise, is it not? A. It was not so very low.

Q. In physics, do you know what you got? A. I do not.

Q. What ought you to have got without any assistance from explanations other than a year's study in what was not a wide subject? A. I do not know. It depends a great deal on circumstances and the person's memory.

Q. What do you think would be fair in physics for the time you put in and the opportunity you had? A. From the amount that I had studied it, I would have been well satisfied with 50 per cent.

Q. You did not expect a first-class on that, did you? A. Not on that paper.

Q. Do you mean to say, that if you had got these questions and prepared them all beforehand, you would have been satisfied with 50 per cent.? If you had been drilled on the very questions in which you were to be examined, you would have got off with 50 per cent.? A. I think it probable that I would have wanted more. I would have wanted more than 50 per cent.

By Mr. Davin.

Q. Did you go into Chemistry during the Session—did you study it very hard? A. I devoted considerable time to it.

Q. If those questions had not been pointed out to you, to go very thoroughly into them, do you think you would have had the marks you had? A. I scarcely think I would have obtained the number.

Q. How is it that you have forgotten so much of your Chemistry? A. On account of a bad memory.

Q. Do you think that you were grounded in the principles of it, or did you cram for the Examination? A. I suppose I became familiar with several of the principles, at any rate; and after these questions were given I devoted my time to the preparation of the answers to them.

Q. Look at the Chemistry Paper for July, 1875? A. Yes.

Q. Mr. Kirkland has asked you the question whether those questions given you in July, 1874, were not questions that were bound to be given in Chemistry—that no Examination Paper could be set unless such questions were found there? You have just answered the question that no teacher would teach practically without asking those questions. A. I said most of these questions were usually asked.

Q. Look at that Paper of 1875; is there one of those questions in that Paper? A. No. 6 is one.

Q. Read No. 4? A. "I pour hydrochloric acid upon some marble, iron and lime, each placed in a separate vessel with a little water. I perform a similar experiment with sulphuric acid and with nitric acid. Describe the result produced in each case."

Q. In question 2 on the Chemistry Paper of June, 1874, what have you? A. "You have given you a few iron nails, some pure tin-foil, copper-filings, and a little granulated

zinc, with concentrated nitric acid and distilled water; state what chemical changes you can produce with these materials, and express the changes, by equation."

By Mr. KIRKLAND.

Q. That is a question of the same nature as the other? A. Different substances, but a similar question.

By Mr. DAVIN.

Q. These questions, No. 4, of July, 1875, and No. 2 of June, 1874, I understood you to say were similar. Are these questions the same? A. They are not the same questions.

Q. Is there any similarity between them? A. There is the nature of the question.

Q. With reference to that question in the June Examination Paper of 1874, and your question in the note-book: "How is commercial nitric acid obtained? How would you detect the presence of a nitrate?" You have been examined as if you were an expert in Chemistry. If you had gone over that question in your note-book, would you be able to answer question No. 2, in the June Examination Paper of 1874? A. It is likely that in reading up the answer to that question, I would have read up enough to answer the other. The reading up of this alone perhaps would not answer the other.

Q. Turn to the July Paper for 1874—question No. 4. You have in that question—"Describe fully what takes place when a stream of carbonic acid gas is passed into lime water to saturation?" And you have in your note-book, question 7, first Paper—"What takes place when carbonic acid is passed into lime water to saturation?" Was that as you stated in your cross-examination only part of question No. 4 as found in your note-book? Look at question 5 in the same Paper, July, 1874, which you withdrew—"Describe the manufacture of sulphuric acid?" A. "Vitriol maker prepares ten tons of vitriol of specific 1.4, containing 80 per cent. of acid; how many tons of pyrites containing 40 per cent. of sulphur must for this purpose be burnt? Suppose 5 per cent. of sulphur remained unburnt in the pyrites, what would be the difference in the production of the sulphuric acid?"

Q. Look at your book, question 8, page 69. If you had read up the subject placed before you in the question, would it not have enabled you to answer the question and the rider, No. 5, in the Examination Paper for July, 1874? A. With reference to the first part—"Describe the manufacture of sulphuric acid?"—the first part of any question agrees with that.

Q. If you had read up the subject as suggested by these questions, you would have been able to answer question 5, in the July Paper for 1874; what is your opinion? A. It is likely.

Q. Question No. 6:—Look at your note-book, question 11, page 71. Have you any doubt that if you read up question 11 on your note-book, you would be able to answer question 6? A. Perhaps, if it were to "describe minutely," it would imply the question given on the paper.

Q. Question 7 on the July paper, 1874, and five-sixths of it, you withdraw, and your evidence to me was that it was a little fuller in the paper than in the book. If you made that question in your book up thoroughly would you be able to answer the entire of question 7, or would you not? A. The questions are not the same; but in preparing the answer for the one given here, it is likely you would acquire information enough to answer the greater portion of the other.

Q. You were pressed whether the formula of the characteristic oxide, chloride and sulphide of the common metals was like the formula of the most characteristic oxide and sulphate of potassium, iron, and copper; if you had studied the question in your note-book, have you any doubt whatever that you would have been able to answer the question in the paper? A. I stated that I had read the question wrongly at first.

Q. But if you had made up that question,—"Give the formula of the most characteristic oxide, and sulphate of potassium, iron, and copper." Would you have been able to answer the second part of the question in the paper. Give the formula of the characteristic

oxide, chloride, and sulphide of each? A. Not by reading up the mere answer for this particular question.

Q. What book would you be likely to read on the subject. A. Roscoe's.

Q. Would you find in the same part of Roscoe an answer to the question in the Paper? A. It is likely.

Q. Is it not certain? A. I would not state it for a fact.

Q. Question 9 on the Paper :—"What is the most important ore of tin, and how is the metal extracted therefrom? How is the presence of tin in a solution detected?" You say that the first part of your own question is the same :—"How is tin obtained?" Mr. Kirkland pressed you as to whether there was not a great difference between the presence of tin and of a compound of tin;—if you worked out the question about the compound, would you not have been able to answer that question about tin? A. Not in looking up the answer for this question.

Q. In regard to the June Paper of 1874, in Chemistry, look at question 6 :—"A specimen of spring water is supposed to contain sulphuretted hydrogen; how would you ascertain whether sulphuretted hydrogen is really present?" In your note-book is—"What are the usual impurities of spring water? How are they detected, and how are they removed?" If you had made up the answer to the latter question, would you not have been able to answer the question—"How would you ascertain whether sulphuretted hydrogen is really present?" A. You would be likely to find the answer for it.

Q. Question 7 :—"By what experiment would you prove that common phosphorus and red or amorphous phosphorus are allotropic modifications of the element phosphorous?" In you note-book it is—"State in general terms how phosphorus is prepared?" If you mastered that question in your note-book, would you not be able to answer every part of question 7? A. If I knew just enough to answer this question?

Q. If you read up and studied up for it? A. If I had read up for it, and studied up for it, I would be likely to answer more than is contained in this question.

Q. Question 8 :—"Describe Marsh's test for arsenic," and in your note-book the same; if you made it up properly would you not be able to answer question 8? A. The answer for it would not be contained in the answer for this question.

Q. But would you have to go over the same ground, in book or in lectures? A. I think that any person in reading up an answer for this question, would read perhaps enough to answer a portion of the other.

Q. Look at question 9, which you withdrew :—"State the composition of the ordinary ores of iron, the chemical principles involved in their reduction, and the composition of cast-iron and steel? How would you distinguish iron from copper chemically?" Question 7 in the note-book is—"Give the formula of the most characteristic sulphate of potassium, iron and copper." If you had studied the subject, as suggested by the question in your note-book, would you have been able to answer question 9 in this paper? A. I think that in studying up all that was suggested in the question, there would have been enough in connection with it to have answered a portion of the question on the paper.

Q. Look at questions 8 and 10 in your note-book, and question 10 on the Examination Paper,—if you mastered the subject or studied it by these two questions, would you have been able to answer question 10 on the Examination Paper? A. If you mastered the subject you would.

Q. In the July Paper of 1874, in Physics, 6th question :—"Explain by a diagram the compound microscope." In your note-book—"Describe the common microscope." If you made up that question would you have been able to answer the other question? A. I withdrew it thus far—in the answer given for the compound microscope—you could not from that bring out the answer for the compound microscope.

Q. But suppose you had made up the subject, and you were told to study up these questions, were you not? A. Yes.

Q. Suppose you had done so, would you have been able to answer the question on the Examination Paper? A. I might and I might not. It depends altogether on how much you study.

Q. I asked, if you studied it up thoroughly? A. I could answer it then.

Q. And half of question 8 was withdrawn. "If the point of a fine needle in metallic

connection with the prime conductor of an electrical machine in action be brought near a candle, the light will probably be extinguished. Explain clearly the cause of this."

Page 90 of your note book has:—"If a point is brought near the prime conductor of an electric machine what effect is produced?" And, "if a lighted candle be brought near the point, what is the effect and what is its cause?"

Q. What do you mean by withdrawing the half? If you studied up those questions 9 and 10, in your note book, would you not be able to answer the whole of that question 8? A. It is quite likely that if I studied up for a part of it, I should have studied up for the whole. It seems to be the opposite of the one I have; but it is likely that a person would study up for both.

Q. You said Mr. Dickson marked the questions in the Paper. How did he come to know you had this note book? A. I explained that he was informed through another party, that I had the questions.

Q. Of what character? Why was he informed of that? Did you say anything to this other party? How did you describe your note book, that led to any talk about it? A. I had frequent conversations with the other party about questions that I had received at the Normal School.

Q. What did you say about those questions? How did you describe them, that led to Mr. Dickson knowing it? A. I described that in the Chemistry questions there was quite a similarity.

Q. Did you say anything about the Physics' questions? A. I do not think I did.

Q. You said you thought there was quite a similarity between the questions of Mr. Kirkland and the Examination Papers of 1874? A Yes.

Q. How did Mr. Dickson first speak to you about the note-book. A. He asked me if I would let him see the questions.

Q. Did he tell you the reason why he wanted to see them? A. I do not know that he told me the reason. I thought I understood.

Q. Look at those questions of 1876, in the Physics Paper, were there any of these very common questions there? In July 1874, you had a lot of common questions. Are any of these questions there? A. The first two are there.

Q. Read them? A. "Describe fully some one experiment by which the mechanical equivalent of heat has been ascertained and state approximately the numerical result."

Q. Where is that in July, 1874? A. I think you will see a similarity in the third question in 1874.

Q. Any other? A. Question 7.

Q. Read question 7. A. "Describe the construction of a Groves' galvanic cell and the nature of the chemical action which takes place in it during the passage of the current."

Q. Where is that in July, 1874? A. The tenth question may bear somewhat upon it.

By Mr. Kirkland.

Q. In the notes, which you have read, read the note to the third question in physics in July, 1874? A. "How is heat measured? What is the thermal unit usually adopted? What do you mean by the mechanical equivalent of heat?"

Q. Now, read from July Paper, 1876, 1st question:—A. "Describe fully some one experiment by which the mechanical equivalent of heat has been ascertained and state approximately the numerical result."

Q. If you had worked that up, you would have answered the first question, would you not? If you had gone to see what is meant "by the mechanical equivalent of heat" you would have been able to have answered this first question? If you knew what that "mechanical equivalent of heat was, you would answer the first question? A. I would not have known how to describe an experiment.

Q. But if you had read it up? A. If I had read it up?

Q. If you had read up the first question you would have answered the second question? A. It is likely.

Q. Is it not certain? A. Yes.

Q. Then, while you were reading up specific heat, you would have the third question? A. Yes, if I read it up fully.

Q. If you had compared the heat and light spectrum fully, you could have answered No. 5? A. I would have known how to answer it.

Q. If you had read up all about it? A. Oh, yes!

Q. Turn to the Chemistry Paper of 1874, question No. 7; read your note. A. "State generally how iodine may be obtained, and how it may be detected in any compound."

Q. Would it not be general enough to read up the whole of iodine from beginning to end? A. I would not read more than there was on iodine.

Q. State how you would answer about a chloride? A. I did not state it would be to answer the whole of it.

Q. What would you get? A. I would not get any on chloride. That is the portion it did not cover.

Q. Reading up iodine, how would it enable you to answer about a fluoride? A. I think you could answer the greater portion of the question.

Q. Would it answer anything about a fluoride? A. Perhaps not.

Q. Why do you say "perhaps?" A. I do not think it would.

Q. It would not answer about a chloride? A. I said it would not.

Q. There are two portions of the question out of three that it would not answer? A. I said it would answer the most of it.

Q. Is one out of three the most? A. I considered the question before of more importance than that.

Q. Come to No. 8. You stated that if you read up what you had in your notes you would be likely to answer the whole question? A. You would be likely to read enough to answer it.

Q. Read your note? A. "Give the formula for the most characteristic oxide and sulphate of potassium, iron and copper."

Q. If you read the whole of potassium, you do not get any of it. In reading the oxide of iron, would that give you information about the sulphate? A. All merely about the oxide would not.

Q. You mean that if you were asked to read about the oxide of iron, you would read all about iron? If you were reading about iron, you would be likely to read about lead? A. If it was just iron alone you would not—it states more—iron and copper.

Q. You do not call two all the common metals? A. No.

Q. You would say there were, at least, seven or eight common metals? You do not mean to say that to read two would give you all the common metals? A. If I were asked to look up carefully for a question of this kind, "Give the formula for the most characteristic oxide, and sulphate of iron and copper."

Q. Would you read lead, tin and zinc besides? A. I might, and I might not.

Q. If you read up those twenty-one questions in the sense you see now, would there be much Chemistry that you would not know? A. As far as these questions go.

Q. Would they not include the whole of the Chemistry if read up in that sense? A. I do not know the whole of it.

Q. Very nearly the whole of it? A. Perhaps it would, as far as we were required to go.

By Mr. Hughes.

Q. Did Mr. Dickson, the Principal of the Collegiate Institute in Hamilton, return your note-book after he borrowed it? A. I do not recollect that he did.

Q. Did he ask you to loan it him that he might use it? A. I do not know that he put it in those terms.

Q. Did you know that it was to be used here? A. I understood so.

Q. And you were to come and give evidence? A. Yes.

By Mr. Edgar.

Q. Are you the correspondent of any newspaper on the subject of the matter inquired into by this Commission? A. I am not.

KATE GRANT, sworn.

BY MR. EDGAR.

Q. You live in Ottawa? A. I do.

Q. Are you a teacher? A. I am a teacher in the Model School there.

Q. This is an inquiry investigating certain charges made against the Central Committee of Examiners, and this is the language in which those charges are stated. I will read them, and ask you to state to the Commissioner anything that you know bearing upon these charges. First, that there is within the Central Committee a ring having dishonourable relations with the publishing firm of Adam Miller & Company, of Toronto. Can you tell us anything of your own knowledge with reference to that charge? A. I know nothing at all about it.

Q. The second charge is this: That in the preparation of Examination Papers in connection with Public and High Schools, there has been collusion between the members of the Central Committee and other parties interested in the work or results of the examinations. Can you tell us anything about that? A. Nothing.

Q. Your name was mentioned yesterday by a witness as having told him something about collusion between Normal School teachers and examiners. Mr. James Slater mentioned your name, I think, as having told him something about this. Did you tell him anything about it? A. I do not remember. I remember meeting him last summer, but I do not remember what we talked about.

Q. How did you happen to come here to-day from Ottawa? Was it in consequence of a telegram? A. I received a summons yesterday—a letter from Mr. Davin.

BY MR. DAVIN.

Q. You met Mr. Slater? A. Yes.

Q. You do not remember anything you talked about, do you? A. We talked about the examination. It was when the examination was going on. I do not know what we said.

Q. Did you say anything to him about that examination bearing on the work that would be done in the examination room by the students? A. I could not say anything.

BY THE COMMISSIONER.

Q. Do you recollect anything of the kind?—It is not a question of what you said, but of what you knew. A. I do not know anything on the subject, but what I meant was that any person who was in Mr. Kirkland's class in any subject as well as Algebra, should have done well, because he teaches thoroughly and well.

BY MR. DAVIN.

Q. Did you attend Mr. Kirkland's classes in 1876? A. The first half of the year.

Q. What classes? A. I attended all his classes.

Q. In Chemistry? A. Yes: and in Algebra and Physics, and Philosophy.

Q. Do you know as a fact that there was great similarity between his questions and the Examination papers afterwards? A. I do not know that afterwards, that session we used some questions previously given by Mr. McLellan to the University Students; and I think that there was a similarity between that and the papers given by Mr. McLellan in the summer of 1876.

Q. Do you remember saying anything to Miss Montgomery on this subject? A. I do not remember. I was with her for a few days; we talked about a great many things, but I do not know whether we talked about this or not.

Q. Did Mr. Kirkland call on you some time before the examination? A. No—not that I remember.

Q. Were you here in 1872? A. I was.

Q. Did Mr. Kirkland do anything peculiar to your knowledge before the Examination of 1872. A. He did not to my knowledge.

Q. Did he call at your boarding-house? A. He never called at my boarding-house, to my knowledge.

Q. How long have you been in Ottawa? A. I was here all 1872 at the Normal School, except the holidays; and I was here the first half of 1876; that is in Toronto.

Q. But how long have you been in Ottawa? A. I have been in Ottawa since the middle of 1876, September, 1876.

Q. When you were at the Normal School, I am glad to see that you and Mr. Kirkland got on very well; did you not? A. Indeed, I think so.

By Mr. Kirkland.

Q. Have you ever seen anything in my teaching that would lead you to expect that I had undue information of any kind? A. I did not.

Charles Belford, sworn—

By Mr. Edgar.

Q. You are Editor of the *Mail?* A. Well, not editor exactly, I have large editorial duties and responsibilities, but I am not the editor; Mr. Patteson has at all events the responsibility.

Q. There are some papers or letters I asked you yesterday to produce; have you them? A. Mr. Davin has them.

Q. Those letters, I think, were some which were referred to in one or two articles in the *Mail?* A. Some of them are referred to.

Q. As having been written by Dr. McLellan to some person who was interested in the result of examinations, asking him to prepare Examination Papers; that is the sense in which they are referred to? A. Yes.

Q. Are those the letters? A. Yes.

Letters produced and marked Exhibits B1, B2, B3, B4, B5, B6 and B7.

[Exhibit "B 1."]

"*Private.*

"Yorkville, 22nd January, 1873.

"Dear Sir,—You had better take the Oakville School if the trustees give you $900 to begin with, *which* I have *strongly recommended them to do. Always take the best you can get*—'bird in hand, &c.' I'll do *all* I can for you for a position in one of the Normal Schools—yet failure *is possible*; it will at all events be so much in your favour that you have been *in demand* among *High School* Boards. I saw Mr. O'Donohoe (whom your father also must see), he will aid you.

"By the way I am very hard worked this half year, would you have time to make me up a few problems and questions in Mathematics, in strict confidence? I take pass Mathematics of 1st year; Conics and Calculus in 2nd; Optics and Hydrodynamics (Pass and Honours), and Statics and Dynamics 3rd year.

"Simon Thurs, and Newton and R. Dury, 4th year.

"I don't wish to trouble you much; but perhaps you may have a little leisure; and the work affords a good exercise of mind.

"I have to *keep two* departments of *law* read up for the LL.D., in June, besides examination of teachers, inspection, reports, &c.

"Truly yours.

"J. A. McLellan.

"J. R. Teefy, &c., &c."

[Exhibit "B 2."]

"*Private.*

"YORKVILLE, 26th January, 1873.

"DEAR SIR,—I am in receipt of your letter of the 25th inst. I trust the trustees of the Oakville School have followed my advice; they were to have a meeting on Saturday, so that you will probably have heard from them ere this reaches you. I think your chances for a Normal School mastership are good, and will surely grow better as time rolls on, so that if a year or upwards is to elapse before the opening of any of them you can hardly fail of success, for you are daily gaining in experience and in reputation. I am obliged by your kind offer of assistance, having so much work to do during the next six months. I accept your offer—Arithmetic Papers (1st, 2nd, 3rd class) for teachers' examination; and 1st and 2nd years answers to Arithmetic Papers will be required. And if you indicate solutions of any *Problems* and *Riders* for University work—it will relieve me of a good deal of work. Make the papers *as original* as possible. I shall probably incorporate some of my own for the different years.

"Let me know if you make arrangements with Oakville trustees—if not I shall look out as I go east.

"I have strong hope—almost confident—that you will get into a Normal School position. I stand well with Dr. R., and with the Government, and you may rely upon my doing my best to secure you what I believe you really merit.

"Yours, &c.,

"J. A. MCLELLAN.

"J. R. Teefy, Esq."

"*Private.*

[Exhibit "B 3."]

YORKVILLE, Feby. 7, '73.

"DEAR SIR,—I send you a copy of University Act. Thanks for promised assistance for myself and McMurchy.

"I *have* the *pass paper* and your first rider will do very well for that. I have half the *Problem paper*, which of course is Honours. The Normals will not be opened (unless perhaps Ottawa) for a year. I'll look sharp for your interests. Perhaps you know I am talked of as Dr. Ryerson's successor. The Dr. will retire, I think, before the new appointments are made. *If I succeed* you need have no fear as to *your* prospects. And if I don't I'll have influence at all events.

"*Manilla* is a mean place; I'll surely get you something better this year if POSSIBLE.

"Make up 2 or 3 stiff Problems for 1st class Arith. paper—a gold medal is *to be given* for best man at ensuing examination—and write a test question or two. You'll not have a vote for Senator unless you have your M.A. Still you can vote for McM., and can use your influence with others.

"I shall soon set out on Eastern tour.

"In haste.

"Truly yours,

"J. R. Teefy, Esq. "J. A. MCLELLAN.

"*Private.*

[Exhibit "B 4."]

"YORKVILLE, 17th Feb., '73.

"MY DEAR SIR,—Your favour to hand; papers good; not too short; *thanks.* Your aid is now a *great favour. Fergus* is very *poor place—tumble-down school-house*—never gave more than $700, perhaps might give $800. You can *command* my influence anent getting *any* school.

"*Van Slyke* will have *no chance.* I think I'll have influence enough to get you in the appointment of *Mathematic Master*, and *others* will be largely influenced by our (my ?) reports.

"I have *given* a *highly* flattering (just, too) report of your school.

"If I succeed Dr. R., there'll be no *doubt* about you. Perhaps you could aid me—write Mr. O'Donohoe, &c., &c., giving your views as to how I inspect, stand *with the Masters*, &c. Your Father, I think, could help me thus.

"I start to-morrow; will be in *Lindsay* Saturday night, Sunday and Monday. If you write after that letter will be forwarded.

"Write in great haste.

"With many thanks.

"I attach great importance to my election on Senate.

"I remain,

Yours ever,

"J. R. Teefy, Esq." "J. A. McLellan.

[Exhibit "B 5."]

"*Private.*

"Yorkville, 8th March, 1873.

"My dear Sir,—"I have received your letter and enclosure. I have not the Eng. papers; the Euclid and *Algebra* (Pass) are mine. I'll be glad of some problems for Problem Papers. I have half the problems for all the years. The *conics* and *calculus* and half problems for second year, Hydrostatics and Optics, Statics and Dynamics, pass paper and half problems for third year, and logarithms and Rigid Dynamics for 4th, etc. Thanks for your kindness. The Normal Schools cannot be long delayed; there will doubtless be other good positions ere long.

"You may rely on me; you have only to ask if anything occurs to you which has failed to strike me, and I'll be ready to aid you. You might write to *Lafferty*. I have not written to him. *Kirkland*, Normal School, and Loudon, are working for me I believe.

"I shall be happy to see you at Easter; stay a night with me if you can, either on your way home or as you return. I shall be home for some days.

"Yours truly,

"J. A. McLellan.

"J. R. Teefy.

"Come up for your M.A. in May; write on *Mathematics*."

[Exhibit "B 6."]

"*Private.*

"Yorkville, 14 March, 1873.

"My Dear Sir, —Thanks for the Problems. Don't be discouraged. I think that ere long we shall have a place with a thousand dollars a year for you; and I have *no doubt* that when the Normal Schools are established (which certainly will be within a year and a half), I shall be able (if living) to get you a mastership. The miserable prejudices to which you refer will not have any influence in such appointments—or at all events, but slight influence. I am *sure* you will succeed; and my advice is, stick to it, and keep up a brave heart, and you must be successful.

"The 'odds' shall not be always against you; I never failed in carrying out an intention; and I intend to work for you till you succeed to something worthy of your abilities.

"Very truly yours,

"J. A. McLellan.

"J. R. Teefy, Esq."

[Exhibit "B 7."]

"*Confidential.*

YORKVILLE, 24 April, '74.

"MY DEAR TEEFY,—I acknowledge the force of your objection as to Dr. W. I should prefer a different man myself, but don't know where to look for a man on whom the masters could unite. I have, as you know, not the least sympathy with Dr. W.'s *bigotry,* but it is desirable to have friends of *University* men in the Council, as they *appoint to all important positions* (Normal School masterships, etc. etc.) *Hunter* would never do; if you can suggest a good man I'll be glad to help. Do all you can for Loudon and Kirkland and Dr. W. W. Ogden."

Q. In reference to the two charges: first, that there is within the Central Committee a ring, having dishonourable relations with the publishing firm of Adam Miller & Company, of Toronto, can you give us any evidence in support of that charge? A. We propose to bring up some witnesses to give evidence on that charge. You have their names, I understand.

Q. Can you give any evidence obtained yourself of your own knowledge? A. No, not of my own personal knowledge. I came to that conclusion from conversations with persons interested in educational matters.

Q. Tell us with whom you had these conversations which led you to that conclusion?

Mr. Davin objected to the question.

After some discussion, the witness said:—

I will not claim the privilege if the answer were material to the inquiry.

After further discussion, the examination proceeded.

Q. Can you, or will you, give me the names of any other witnesses besides those that you have already given? A. Yes, Mr. Clark, of Copp, Clark & Company.

Q. In addition to this, have you any other names of persons you are willing to give me—who in your belief or knowledge can give material evidence? A. I have not. If I had, I would have given them to you before.

Q. As to the second charge—as to collusion in Examination Papers, do you say the same? A. The same.

Q. You were the person on the *Mail* staff who was most conversant with these matters, I think? A. Yes.

Q. I got a letter from you some time in July, to a communication from me asking you to furnish names of correspondents, in which you said that you had called upon them through the newspaper, and hoped that they would give you authority to give their names? A. Yes, and more, I wrote private letters to some half a dozen of them. Some of them objected, because they said that they would be marked men. I have not furnished you with any more, because I have none to furnish.

BY MR. DAVIN.

Q. You have, as one of the editors of the *Mail,* in this matter, acted in the public interest? A. I think so; that was my object.

BY DR. MCLELLAN.

Q. I believe that you have handed in certain letters, which you say were written by me; how do you know that they were written by me? A. They were signed J. A. McLellan.

Q. Do you know that there are two J. A. McLellan's? A. I am not aware.

Q. Who is the party to whom those letters are addressed? A. Mr. Teefy.

Q. Did you get them from Mr. Teefy? A. I did not.

Q. From whom did you get them? A. I am not aware that that is material, unless his Lordship says so.

After some discussion the witness said :—

They were sent to me with entire authority to use them as I saw fit, by the gentleman who sent them to me.

He was not Mr. Teefy ? A. He was not.

Q. Had he Mr. Teefy's authority to use them ? A. He said in his letter, to me, that he had.

Q. Can you produce the letter in which he said so ? A. It is a private letter. I have not his authority to produce it.

Q. He had not such a high opinion of private letters as you have ? Q. I am not here to answer for him.

Q. You refuse to answer who gave you those letters ? A. I do, certainly.

Mr. McLellan appealed to the Commissioner as to whether the witness should answer the question, or not.

The Commissioner :

It does not strike me as material.

Examination continued by Dr. McLellan :—

Q. Are you responsible for the editorials—Do you father all the sentiments and opinions advanced in the paper ? A. I am not responsible in the actual sense.

Q. Did you write the article on Elementary Statics in which it was stated that an endless variety of questions could be set on the subject ? A. I decline to say who writes for the *Mail*. I submit that the *Mail* is responsible for any statement which it makes, and if Mr. McLellan or any one else is libelled, he has his recourse at law.

Q. You say that you are responsible for the articles written in the *Mail* ? A. I do not.

Q. Do you repeat now, that a vast range of questions can be set in Elementary Statics ? A. I am not going to answer. The *Mail* has stated so, and is responsible for the statement.

By Mr. Buchan.

Q. Have you received any remuneration in connection with this matter other than that you receive as your ordinary stipend ? A. I have not.

By Dr. McLellan.

Q. You stated, that two or three of the parties you wrote to, and pressed to come here, and give evidence and assume public responsibility, declined to do so, on the ground, that they would be marked men ? A. Yes.

Q. In what respect did they say or intimate that they would be "marked" ? A. That some of them were immediately under your control and superintendence, and would be marked men in that respect.

Q. Did they intimate that I had ever done them the slightest injustice in that respect ? A. No, I think not.

Mr. Davin put in Examination Papers of June, 1874, of July, 1874, July, 1875 and July 1876, marked respectively, C, D, E, F.

The Inquiry was adjourned until eleven o'clock to-morrow.

NORMAL SCHOOL, TORONTO,
Wednesday, November 14th, 1877.

The Inquiry opened at 11 o'clock.

ESTHER EMMA MONTGOMERY, sworn :—

BY MR. DAVIN.

Q. You live in Brantford? A. Yes.

Q. You are a teacher? A. Yes.

Q. Did you attend the Normal School as a student of the first Division in the Session ending June, 1876? A. I did, part of the Session.

Q. Had you any idea of what the Examination Papers were to be? A. I had no idea.

Q. Was any intimation made to you as to what those Examination Papers would be? A. I heard conversations sometimes which led me to suppose we might have known.

Q. Who spoke to you on that subject? A. Miss Grant said once that, before an examination took place, I think in 1872, Mr. Kirkland took some of his students into a room and gave them the substance of a Chemistry paper, or nearly the substance.

Q. Did you share such belief at the time? A. I did not.

Q. Did anything occur afterwards to make you change your view of the question? A. It did.

Q. What occurred? A. When I compared the Examination Papers with the notes we received from Mr. Kirkland, I thought there was a great similarity.

Q. What notes do you allude to? A. I allude to notes in Chemistry and Physics.

Q. Where are your notes in Chemistry to be found? A. In my Roscoe's Chemistry.

Q. Had these notes anything peculiar about them, in themselves or the manner in which they were given? A. Towards the latter part of the session, Mr. Kirkland emphasized the questions in the notes that he gave.

Q. Is that your note-book? A. It is. (Roscoe's Chemistry with notes produced and marked Exhibit "G.")

Q. Turn to the Chemistry paper, No. 2, of the July Examinations for 1876, for first class Provincial Certificates. Read the first question? A. "A mineral water, in addition to chlorides, contains small quantities of iodides and bromides: how would you detect the presence of these salts in water?" (Examination Papers for July, 1876, produced and marked Exhibit "F."

Q. Turn to your note-book and tell me what Mr. Kirkland said which led you to draw the inference you have told us of? A. "Test for a chloride. If silver nitrate be added to the soluble chloride, silver chloride will be formed and a black ring will be seen, K Cl + Ag N O3 = K N O3 + Ag Cl."

Q. What is the page in your book? A. It is a note pasted in opposite page 104. Then opposite page 117, I have, "If a solution contains bromine, pass Cl through it, and Br is liberated and is of a reddish brown color. Add ether to it, and the Br rises to the top, as the ether dissolves the Br. The Br is known by its reddish colour." On page 118, I remember well marking the test for iodine. I have not the note, because it is to be found in Roscoe.

Q. Why did you mark it? Did anything occur in the lecture-room to make you mark it? A. I thought it was an important question.

Q. Were you told to mark it? A. We were told to learn that.

Q. Look at question 2 on the Examination Paper? A. "Describe the properties of carbon which tend to show that diamond cannot have been formed at a temperature at which pure iron melts. How would you show that carbonic acid (CO_2) is a compound of carbon and oxygen, and that it contains (very nearly) its own volume of oxygen?"

Q. What have you in your note-book and in Roscoe in regard to that? A. Immediately before the examination, Mr. Kirkland told us to read up carbon, and told us to look particularly at the diagram to be found in Roscoe's Chemistry.

Q. On what page is that? A. The diagram is on page 88. If I had read carbon I could have answered that question.

Q. Have you any note? A. I have a note on page 84 which I think is not in Roscoe.

Q. Read that note? A. "Mg burns in CO2—oxide of Mg left—the Mg decomposes the CO2 and Mg unites with the O and carbon is left. The same applies to K."

Q. Your attention you say was specially directed to that? A. We received that note. I have it written here.

Q. How long before the examination? A. I think these were given towards the latter part of the Session—I think within three or four weeks.

Q. Does that note answer question 2 in the Chemistry Examination Paper? A. I intend to leave my notes to some one who knows more about Chemistry than I do to decide whether my notes answer the questions.

Q. Look at question 3? A. "Describe how you would prove bone-ash to consist chiefly of calcium phosphate. Explain the decomposition of bone-ash by diluted sulphuric acid. Explain by means of symbols the reaction which takes place when a solution of sodium carbonate is added to one of phosphoric acid." I have the note on phosphorus. The subject of phosphorus is marked, and the mark I have is opposite page 152 of my Chemistry. "Phosphorus—Nat. Sources—Bones of animals. Preparation—(1) Burn the bones, (2) distil in iron vessels and so keep the animal matter. Glue is made out of the animal matter; (3) add H2 SO4, and CaSO4 will settle to the bottom, and may be removed; (4) evaporate: (5) add charcoal and heat, CO2 is formed, and P will distil over and is condensed in water."

Q. Does that note answer question 3? A. As I told you, I do not intend to say whether these are the answers or not. I intend to leave that to somebody who understands Chemistry.

Q. You might give an opinion on that. Does that cover the same ground as question 3? A. I think that question is not covered so fully as some others.

Q. Look at question 4? A. "Describe the leading properties of arsenic, and name those elements that are usually grouped with it. What means do we possess for the detection of small quantities of arsenic? Name the substance which is considered the best antidote against it? State how you would determine whether a given gas consists of arseniuretted or antimoniuretted hydrogen."

Q. You have a note on that; turn to it? A. Opposite page 160: "Connected with non-metallic P and N. Metallic Sb and Bi occasionally combined with nickel, iron, cobalt, and sulphur. Preparations—Roasting ore, when arsenious acid (As2 O3) is formed. This is the white arsenic of commerce. To get arsenic from As2 O3 mix with charcoal and carbonate of soda. Properties—It is a solid of grey lustre, volatilizes when heated and burns with a bluish flame, taking fire when thrown into chlorine. Tests—When heated is recognized by odour of garlic. Take a piece of the mineral add NaC O3 and place on piece of charcoal, and add heat from blowpipe, and smell of garlic. As2 O3 is most important. Sources—Arsenical pyrites Fc S As. Preparation—By roasting the arsenical pyrites. Properties—White heavy powder, sometimes in crystals, insoluble in H2 O, very soluble in solution of the Alkalies and in H Cl. Intensely poisonous. Poisonous wall paper—After some time the paper becomes rough and the air is filled by dust, which rubs off the paper when it is touched. To test whether arsenic is present in green paper—Steep it in H2 O drain of N2 O and add N H3; a bluish colour is given. To test for the arsenic itself—Take a bottle containing pure Zn; add H2 S O4 as if going to make H; sometimes the H2 S O4 will not act on Zn; then add platinum bichloride; leave for a time till air goes out of bottle; light the gas given off; take a piece of clean porcelain—a metallic mirror will be formed on porcelain. If the mirror be formed arsenic or Sb is present. Distinguish As from Sb. If it be arsenic, it will dissolve in solution of chloride of lime."

Q. Take the five parts of that question. "Describe the leading properties of arsenic" you have in your note. "It is a solid of grey lustre, volatilizes when heated, and burns with a bluish flame, taking fire when thrown into chlorine." That answers the first part does it not? A. I would rather leave all that to somebody else.

Q. Are you struck with the similarity? A. I am struck with the similarity all through.

Q. "Name those elements that are usually grouped with it." Are these generally the elements grouped with it? A. That is what I have here.

Q. Third, "What means do we possess for the detection of small quantities of arsenic?" You read the means of testing arsenic in green paper?" A. Yes.

Q. "Name the substance which is considered the best antidote against it," and you have ferous oxide? A. Yes. "Ferous oxide is the best antidote, but it is hard to be obtained."

Q. Then, "State how you would determine whether a given gas consists of arseniuretted or antimoniuretted hydrogen." You have here, "To test for arsenic—take a bottle," and so on? A. Yes.

Q. Look at question 5? A. "Describe the preparation of potassium from potassium carbonate and explain the process. State how you would distinguish potassium from sodium and how detect each metal in its compound."

Q. Have you a note on that? A. Opposite page 190 and page 192.

Q. Read what you have? A. "Potassium—Sources—Plants which obtain it from felspar of granite rocks. Preparation—1st, obtained, by Sir H. Davy, by decomposing caustic potash by electricity; 2nd, potassium carbonate and carbon. The K passes over into naphtha, or with any substance that will not unite with it, such as coal-oil, benzine, or turpentine. Properties—Light, soft, easily spread with a knife, unites with O at ordinary temperature of air, forming K2 O decomposes H2 O, one atom of K being replaced by an atom of H, forming KHO. Tests—A purple flame; K added to H2 O gives KHO, and a purplish flame is seen; the H escaping is intensely hot, and meeting with the O of air takes fire." On page 192, "Tests for K and Na—Na gives a yellow colour in flame; K gives a purple."

Q. The latter part of question 5, "State how you would distinguish potassium from sodium, and how detect each metal in its compound"—could that have been answered from the book? A. I do not think it could be answered from Roscoe. It might; I do not know.

Q. You do not think so? A. I do not think it could.

Q. Look at question 6? A. "By what experiments would you prove that gunpowder is a mixture, and not a compound? Explain fully how the substances of which it is composed act on each other during combustion? How do you explain the mechanical effects produced by the explosion of gunpowder?" Opposite page 192, I have: "To test whether gunpowder is a chemical compound or a mixture.—1st, steep the powder in water, and filter, test the dissolved substance for a nitrate; then dissolve the substance (that remains in the vessel) in C S2, and test for sulphate (the smell of S will be given off if it is heated), then test the remaining substance by burning in O, and CO2 will be formed." I remember well the day we had that lesson. I knew the latter part of that question, and did not take any note on it. It was something I was familiar with.

Q. Look at question 7? A. "How is metallic lead obtained from galena? A sample of water is supposed to contain a small quantity of a lead compound. Describe fully how you would examine the water for lead?"

Q. Have you a note on that? A. On page 247, I marked the lesson on lead. I remember taking a note from it, but I have not the note here. I remember taking the note and I thought it was not worth while finishing it out, because it was in Roscoe's Chemistry, and I marked it opposite page 247. I have: "Add water to H2S, and use the liquid to test lead. If lead be present when H2S is added, a black colour will be at once seen." I do not think that is found in Roscoe. It may be. It was not familiar to me then. I do not remember reading it in Roscoe.

Q. Question 8? A. "How would you prepare pure silver from an alloy of silver and copper? Why is silver considered a monovalent metal? Enumerate the oxides of silver, and give a brief description of each of them? The ordinary silver coins are made of an alloy of silver and copper. How would you prove the presence of both these metals in a coin? I remember having a lesson on the first part. I do not remember the second part. I have a note on the last part, "The ordinary silver coins," &c.

Q. Read it? A. Opposite page 247, I have: "Take a quarter dollar and test it for silver, and also for Co—1st, add to it H MO3 and test the liquid by adding N H3; a blue color is seen, showing Co is present. 2nd, add H Cl, a white precipitate of Ag Cl is formed, showing Ag is present."

Q. Was the silver question gone into ? A. It was. We had a question on amalgam.

Q. Question 9 ? A. "State the composition per cent. of iron pyrites, epsom salts, calomel and corrosive sublimate." I have nothing marked for iron pyrites." I do not remember that.

Q. Have you anything marked for epsom salts ? A. Yes, I have for epsom salts, and I have a note for calomel and corrosive sublimate.

Q. Read the note ? A. The note is opposite page 251 :—"Mercuric chloride or corrosive sublimate, Hg Cl2. Mercurous chloride or calomel, Hg2 Cl2, to distinguish Hg Cl2 from Hg2 Cl2, add potassic iodide to Hg Cl2, and it first becomes yellow, then by adding more KI orange, then red, then colourless as before the KI was added, KI added to Hg2 Cl2 has no effect or at least a very slight effect."

Q. Look at question 10 ? A. "What weight of marble, when acted on by hydrochloric acid, will yield a cubic foot of carbonic acid gas ?" I remember that Mr. Kirkland gave us a problem in Chemistry—I do not remember whether it was this ;—he told us to work it by the English method as well as the French, as we were as likely to get it in one as in the other.

Q. Is this in the English or in the French ? A. In the English.

Q. Were you struck generally by the similarity of those questions ? A. After the examination, I was very much struck with them.

Q. Would you look at the Examination Papers of 1876 for First-Class Provincial Certificates, commencing 10th July, 1876,—the Physics Paper, No. 17 ? A. I have it.

Q. Read the first question. A. "Describe fully some one experiment by which the mechanical equivalent of heat has been ascertained, and state approximately the numerical result. It is found that equal weights of water and copper require respectively 100 units, and 9 units to raise their temperature by the same amount ; find from this fact how much a mass of copper would be raised in temperature by striking a hard non-conducting surface after a fall of 36 feet."

Q. Can you tell the Commission anything about that ? A. I can say that we had the first clause of that question.

Q. Read question 2. A. "How may the quantity of heat in a body be measured ? To what height would a weight of 193 lbs. be raised by cooling 5 lbs. of boiling water, the temperature of the air being 62 F. ? "

Q. Do you remember anything in regard to that question ? A. I remember having the first clause.

Q. Read question 3. A. "What is the cause of the difference between the specific heat of air at constant pressure and at constant volume ? " I remember Mr. Kirkland giving us that question as it stands on the paper.

Q. Read question 4. A. "If a luminous point be seen after reflection at a plane mirror by an eye in a given position there is a certain space within which the image of the point can never be situated, however the position of the plane of the mirror be changed : find this space."

Q. Do you remember anything in regard to that ? A. I remember that we had a great many questions on that subject; but I do not know whether we had that question or not. I do not remember it.

Q. Read question 5. A. "Give an account of 'Frauenhofer's lines' in the solar spectrum. Sodium introduced into the flame of a Bunsen burner produces the well-known yellow line in the spectrum of the flame. If, however, the yellow light is made to pass through sodium vapour before it can reach the prism, no yellow light is seen ; explain fully the cause of this result. What inferences would you draw from this concerning the material constitution of the sun ? "

Q. Have you anything to say to the Commission in regard to that question. A. I have to say that was all told to us, and we were told to read that subject.

Q. Read question 6. A. "Describe the construction and explain the action of Holtz's electric machine, in which a small initial charge of electricity is made to give rise to an indefinite supply of electricity of a high tension, and show how its effects can be reconciled with the principle of the conservation of energy."

Q. Have you anything to say in regard to that ? A. In regard to the first part, Mr. Kirkland told us to learn up Holby's and Whitcher's machines. We got Hoby's.

Q. Read question 7. A. "Describe the construction of a Grove's galvanic cell, and the nature of the chemical action which takes place in it during the passage of the current. The current from a battery of 6 Grove's cells, connected in a series, passes through a voltameter containing acidulated water. What is the weight of zinc dissolved in the battery, while ·36 of a gramme of water is decomposed in the voltameter?"

Q. Anything about that? A. As regards the first part, we took up the batteries.

Q. Read question 8. A. "How would you compare the magnetic intensities of two places on the earth's surface?' We had that question given to us as it stands on the paper.

Q. Exactly? A. Exactly.

Q. How long before the examination? A. Shortly before the examination.

Q. Read question 9. A. "Describe the construction of the induction coil, explaining the special functions of each of its principal parts?" A. We had that question, we were told to write that out.

Q. Read question 10. A. "Describe the astronomical telescope; trace the course of a pencil of rays from any point of a distant object, and find the magnifying power. If the focal lengths of the lenses be 12 inches and 1 inch, how far must the eye-glass be moved for viewing an object at a distance of 40 feet from the object glass?"

Q. Look at your note-book in Chemistry again. How many slips of paper have you in that note-book? A. I think there are thirteen. I remember when I put in the first. It had nothing to do with this examination. Mr. Kirkland gave us a lesson in the laboratory, and gave us the tests for water, and I remember writing it out and putting it in the book.

Q. You have twelve slips. Why did you put these in? A. I had them in before I wrote anything.

Q. Why did you write these twelve matters and nothing more? Was your attention specially directed to them? A. It was.

Q. Look at the Chemistry paper—there are 10 questions there? A. Yes.

Q. Out of those 10 you have notes on 9—I understand you to say that, out of 12 little leaves in your note-book, you got 9 questions? A. I did not count those as I gave them to you. I counted the whole number, not those that had notes for 1876.

Q. How many of those? A. I have just found out something I did not know was in this. I have the formula for iron pyrites; it is given with some other substances. That was given with some other substances. It is a question to distinguish copper from iron or iron pyrites.

Q. So, in reference to question 9, you have what you did not know? A. I have the formula for iron pyrites, which I did not know I had.

Q. Out of 13 slips, 10 bear on 10 questions here? A. I do not think it is necessary for me to say. They are here. Any one can count them. I do not want to give the number.

Q. What certificate did you take? A. In 1876, a 2nd A; in 1877, a 1st C; in 1876, I took a 2nd off the 1st class papers.

By Mr. Kirkland.

Q. You stated that I emphasized certain points;—in what way did I emphasize them? A. You emphasized them, I thought.

Q. In what way? A. As any one would emphasize anything they wished to say.

Q. Out of some hundreds of questions, were some of these emphasized more than others? I thought those were emphasized.

Q. And you got them up accordingly? A. I did not.

Q. Why did you not? A. For one reason, I was not able to. I was sick.

Q. You attended very regularly. I did not see anything the matter with you? A. I leave it to the lady who boarded with me whether I was sick in 1876 or not.

Q. You were always at the Normal? A. I do not know. I do not think I attended every lecture.

Q. You were not often absent? A. I do not know.

Q. You passed the examination in Chemistry, in 1877? A. I did.

Q. What marks did you get? A. 140 out of 150.

Q. Was not that high? A. I was satisfied with them.

Q. Do you think you had some knowledge of the papers under those circumstances? A. I had not.

Q. If you had been at the Normal School and got that number of marks, would not that have been evidence to your mind that you had some knowledge of the papers? A. It would not.

Q. One of the evidences of having knowledge beforehand is the high stand taken. You took the highest stand taken on the Examination papers? A. I have said what I had to say about the physics paper. In that subject I have never done well.

Q. You must have a pretty good knowledge of Chemistry to make that percentage out of a first-class paper? A. I do not know. I never considered myself well up in any subject particularly. I tried to do the best I could.

Q. The Examiners considered you well up in this? A. I suppose so.

Q. You were asked to test for chlorides. Did you make that test in the laboratory? A. I remember being there once. I think I was there twice. I might have been there oftener, but I do not think more than three times.

Q. I thought you were there every week? A. No, I did not go in. I do not think many of the ladies did. I do not remember very well.

Q. If you were teaching Chemistry, would you leave out the test for chlorides?

Mr. Davin objected to the question.

The Commissioner over-ruled the objection.

Q. I have nothing to say except what I have said. I have never taught Chemistry, and I have no opinion to express.

Q. What were we at in Chemistry when you came? A I do not remember.

Q. How often had you Chemistry during the week? A. I think twice; I am not sure. I think one time we had it with the Second Division—either that or physics.

Q. Twice a week? A. I think so, but I cannot say decidedly.

Q. Had you studied chlorine then? A. I do not know.

Q. In the first question you are asked to test for chlorides and iodides. You have marked iodine? A. I read the notes I took at that time.

Q. In teaching Chemistry, could you have left out iodine? A. I have never taught Chemistry, so I cannot judge what you would do.

Q. During the past year did you study iodine? A. I went all over the book, I think. I do not remember anything in particular.

Q. Did you study iodine? A. I suppose I did. I cannot say that I did or that I did not.

Q, Your memory is somewhat short, is it not? A. It is not.

Q. Can you say whether you studied iodine or not? A. I cannot.

Q. Did you study chlorine? A. I cannot say. I could not say decidedly whether I did or not.

Q. Did you study carbon? A. I could not say. I made up my subjects to the best of my knowledge, but I cannot specify any particular subject.

Q. "Describe the properties of carbon which tend to show that diamond cannot have been formed at a temperature at which pure iron melts." Do you recollect that I ever taught that? A. I remember what I said before. You said, study carbon and look up the diagram in Roscoe.

Q. What is it about? A. It is on page 88.

Q. What is it about? A. It is about carbon.

Q. Was there anything unusual in telling you to look up carbon? A. I do not know.

Q. It is a proper subject to get up, is it not? A. The whole of the subjects are proper to get up, I think.

Q. Did we go over every subject in Chemistry, or did we leave out some? A. I could not say positively.

Q. Did any person tell you not to answer my questions? A. No, they did not. No one ever told me either to answer or not. I am doing just what I think is right. I do not need to be dictated to by anybody—I have a mind of my own.

Q. "How would you show that carbonic acid is a compound of carbon and oxygen." Did I make an experiment on that. A. I do not recollect.

Q. "Describe how you would prove bone-ash to consist chiefly of calcium phosphate." Do you recollect anything about that? A. I remember we had a lesson on Phosphates, and I took down the notes.

Q. Could you have a consecutive lecture on Chemistry without a lesson on Phosphates? A. I never gave any lessons on Chemistry, so I have no opinion on that matter. I would rather leave it to some one who has taught Chemistry to say. If you had the whole subject to get up, you would have to get it all.

Q. That could not be left out? A. Not if you took the whole subject.

Q. You could not say whether we took up the whole subject or not? A. I cannot.

Q. What is your opinion? A. I have not any.

Q. You had a lesson on Arsenic? A. Yes.

Q. Had you any note on Arsenic which served you any purpose this year? A. I do not remember. I forget what the Paper for this year was. I could not say whether that note served me or not. I studied Chemistry since 1876.

Q. You seem to have forgotten it now? A. I do not think I have.

Q. "A piece of bright green wall-paper, supposed to contain arsenic, is given you; describe fully all the experiments by which you could ascertain the presence of arsenic in the paper." That is a question in 1877. Have you that in your notes in 1876? A. I have that with the other tests for arsenic.

Q. If you had had that question in 1876, would you not have thought it strange to have a question on a note which you had? A. I would not.

Q. Why did you think it strange? A. Did I say I thought it strange. I have given you the notes. Others can make their comments on them. I make none.

Q. You say you were struck with the similarity of the questions? A. Afterwards.

Q. If you had got that question would you not have been struck with the similarity? A. Not with one question. I take the whole Paper.

Q. But apparently the questions you got were directions to get up important points—not questions, but directions to read up subjects on which questions were to be put—that is your argument? A. I have no argument. I have said all I had to say, others can argue on it. Anyone who is an expert in Chemistry can take my book and see whether they are the same or not. I will not say whether they are or not. I do not consider myself competent to decide.

Q. You are competent to answer a simple question? A. Not to answer that.

Q. You state that you were struck with the similarity of the questions? A. The whole thing.

Q. I ask you whether, if you had had a question in 1877 in the exact words of a note in 1876, you would not have been struck with the similarity? A. I do not know.

Q. How do you know you were struck in 1876? A. I remember it.

Q. Why were you not struck in the other case? A. I do not remember the 1877 Paper.

Q. This is the question:—"A piece of bright green wall-paper, supposed to contain arsenic, is given you; describe fully all the experiments by which you could ascertain the presence of arsenic in the paper?" A. That is one question. I would not be struck for one question; it would be very foolish.

Q. All you have about question No. 3 of 1876 is, that you had a lesson on Phosphorus—that is your answer? A. I make no answer. I give you my notes.

Q. What is your note? A. I said my note is not so full on that as on the others; I have a lesson on phosphorus and a short note on phosphorus.

Q. What note? A. I have the lesson on phosphorus marked, and I have a short note on phosphorus.

Q. All you can say on No. 3 is, that I taught phosphorus fully? A. I say I have this marked and a note.

Q. And the note is something additional to what is in the book, or something similar? A. I do not know.

Q. Is the note the substance of what is in the book? A. I will leave that for somebody else.

Q. Read your note? A. "Phosphorus:—Natural sources—Bones of animals. Preparation—(1) Burn the bones; (2) distill in iron vessels, and so keep the animal matter—glue is made out of the animal matter; (3) add H2 SO4 and CaSO4 will settle to the bottom and may be removed; (4) evaporate; (5) add charcoal and heat, CO2 is formed, and P will distill over and is condensed in water." Then I have the formula, just the same as you drew on the board.

Q. What was the object of the formula? A. It is "Ca OP2 O5
H2 SO4
Ca SO4 + H2 O + P2 O5
The H2 O is drawn off by evaporation."

Q. It is the preparation of phosphorus? A. Yes.

Q. Have you any answer to the first part of this question? A. There is my note; you can decide whether it is an answer or not.

Q. Is it an answer? A. I will not say.

Q. What do you think; have you an answer to that in your note? A. I am not prepared to say whether these are answers or not Let some person who is an expert in Chemistry see whether they are or not. I will not answer. I came to say what I thought right. I did not come here to be bullied.

Q. Were you struck with the similarity between question 3 and anything I gave you? A. I cannot say about any question in particular. I was struck with the whole paper.

Q. Is question 3 similar to anything I gave you? A. I have the note here; anyone can see whether they are similar or not.

Q. I want the reasons why you formed an opinion? A. I cannot tell exactly why I am struck with anything, or anything about it.

By the Commissioner.

Q. You were struck with the similarity, and you cannot tell why? A. With the whole paper—not any particular question.

By Mr. Kirkland.

Q. And can you give no reasons? A. I cannot give reasons.

Q. Question No. 10,—"What weight of marble, when acted on by hydrochloric acid, will yield a cubic foot of carbonic acid gas?" You say you got a number of questions like that? A. I say you gave us a problem in chemistry, and you said we were to work it by both methods, and I took it home and worked it. That is why I remember it so well. I think the majority had not it worked, and I remember working it over afterwards.

Q. You do not remember whether it was like this or not? A. I do not say it was that question.

Q. You can give me no reasons whatever for being struck with these questions on the paper? A. I cannot give a reason.

Q. Take the paper on Physics: you had the chemical equivalent of heat and specific heat, but not the riders? A. Yes.

Q. Read Question 3 on Physics? A. "What is the cause of the difference between the specific heat of air at constant pressure and at constant volume?"

Q. I asked that, you say, in the exact words? A. As nearly as I can remember, it was the same as that.

Q. Have you a note of it? A. I had notes of those, but I threw away my rough note-book along with a lot of other rubbish when I went home in the summer.

Q. Did any one ever borrow it from you? A. No one.

Q. Or ask for it? A. No one.

Q. Who asked you to come here to-day? A. In speaking over the matter with some

friends, I remember I was asked if I could say anything. I said I was a student in 1876, and I had some notes.

Q. Who were the friends? A. I consider that my private business; they were private friends and that is my private business. I came here of my own accord; of course some one sent me a telegram, and I came down.

Q. You refuse to say who asked you to come? A. I do not think any one asked me to come, except when the telegram was sent. I talked the matter over with several people.

Q. Who were they? A. That is my private business.

Q. You swear that Question No. 3 was asked in the same words? A. I do not say that; I say that to the best of my recollection it is the same.

Q. "How do you find the specific heat of a gas, and account for the difference between that at constant pressure and constant volume?" Might that be the question asked? A. I cannot say; as nearly as I can remember, that was the question given, and I say it still.

Q. You do not positively say? A. As nearly as I can remember.

Q. You would not swear it is? A. To the best of my knowledge it is.

Q. Was Question 4 asked during the class? A. I could not say; I remember you gave us a great many questions on that subject.

Q. What is the subject? A. It is on the subject of light; I could not say whether this question was given or not.

Q. Light is a very wide subject? A. Yes.

Q. There are four or five parts of it? A. Yes.

Q. And this may be a part I did not touch? A. I say you gave us a great many questions; I cannot say whether you gave this question or not.

Q. Did I ask Question 5? A. I say you gave us a very full lesson on this.

Q. More than one on spectrum analysis? A. You might have.

Q. No. 6, did I ask or describe Holby's machine? A. You told us to look up Holtz's and Winter's, and I think I remember some of the ladies making a remark that they would go to Piddington's and get a book to look that up. I do not know whether they went or not.

Q. Which machines did I describe in class? A. I do not remember whether you described these or not.

Q. Do you recollect any machines being described in the class? A. I remember that one time you took us upstairs to some room, and showed us an electrical machine that was to be sent to Philadelphia.

Q. Carey's? A. I think so.

Q. Did I show it to you in the lecture-room, as well? A. I do not remember that.

Q. Did I describe the ordinary plate machine? A. I could not say.

Q. How do you recollect Holby's? A. Because they were entirely new to me: I did not know there were such machines.

Q. Would you recollect more than the plate machine? A. Well, the common machine of course was more familiar to me.

Q. The second part of the question—about the conservation of energy,—do you remember that? A. I do not.

Q. Grove's Battery—how many batteries did we work with? A. I remember we took up the battery; I remember a question in the class about one, but I do not remember which.

Q. How many batteries did we take? A. I think you took them all up.

Q. Do you recollect getting the rider to that seventh question in the class? A. No, I do not remember that.

Q. No. 9—describe the Induction coil,—do you recollect that? A. I do.

Q. Under that name? A. No, Reumasker's coil.

Q. Did I go over that very fully? A. Yes, I think you went over that many times; and told us we had better read it up.

Q. The Astronomical telescope,—did I go over that? A. You did.

Q. Did I describe it? A. I think you drew it on the board.

Q. What other telescopes? A. You gave us a book—I do not remember the name

of it; it was quite thick and rather old, and you told us to look up the telescopes, and Miss Carter and I looked it up.

Q. Did you have Newton's? A. Yes.

Q. And Herschell's? A. I remember Newton's and the astronomical.

Q. There are several very unusual questions in that,—riders. Do you recollect any unusual question which I asked, any question which is not simply bookwork, found in the ordinary books? On these two papers there are several very unusual questions; can you point to any which I asked which is not common bookwork? A. No. 3 was not common to me; I do not know whether it was to any one else. I learnt that out of a particular book.

Q. Tyndall's? A. Everett, on the steam-engine.

Q. Is that the only one you consider unusual? A. I consider that unusual; the Induction coil was new to me then.

Q. It is one of the commonest? A. It was not common to me.

Q. Did you ever see a treatise on electricity without it? A. I do not think it was in the book I used in 1872; after you gave it to us I read it up, I think in Balfour Stewart; and Holtz's machine was new to me—I knew nothing about it.

Q. And Winter's? A. Yes.

Q. And so was Carey's? A. Yes.

Q. If you had full notes on these two papers with special attention directed to these questions, you should have shown it in your examination. Would you not expect that you should have done better and have answered well in the examination? You stated that I emphasized those points? A. I say I did not learn this well, because I was not able to study. I did the best I could. I was not very well in 1876.

By Dr. McLellan.

Q. Were you up for examination in 1875? A. I was.

Q. What class did you compete for? A. I competed for first, and got second class A.

Q. You had not attended the Normal School that session, I think? A. No.

Q. Where did you prepare yourself? In St. Catharines. I had been teaching and stopped and studied by myself.

Q. Do you remember your marks in Chemistry on that occasion? A. No.

Q. The records of the Department show that you made 65 out of 150 at Chemistry, and 70 marks in Physics out of 125. On the two you obtained 135 marks? A. Yes.

Q. You were not in good health in 1876? A. I was not in 1875 either.

Q. You did pretty well, did you not? A. I do not call it well.

Q. About 43 per cent. in Chemistry—the Physics rather better; you had remarkable advantages in attending the Normal School in 1876, if your health had enabled you to profit by them? A. If I had taken the advantages. I do not think I thought there was anything very strange about it till after the examination. I had had hints that, if we paid attention to what was said, we could get up the matter well.

Q. Your health was not worse in 1876 than in 1875? A. I think it was.

Q. If Mr. Kirkland specially emphasized the questions, as far as your health would permit, you would pay special attention to those questions? A. No, I would not.

Q. You have taught? A. I have.

Q. Where? A. In St. Catharines, in the Public Schools for a number of years, and afterwards in the Collegiate Institute.

Q. Who was the master? A. Mr. Hunter part of the time, and Mr. Seath part of the time.

Q. When you instructed a class, did you not often say, "I want you to get up so and so pretty well?" If you did so, would you not expect them to do it? A. I would, if I told them to do it.

Q. So, if Mr. Kirkland told you to read up on special points, one would imagine you would devote what attention your health would allow to those points? A. My health did not allow me to.

Q. Were your advantages better in 1876 than in 1875? A. I think they might have been.

Q. You say you did badly in Chemistry in 1875? A. You gave me the marks.

Q. You intimate to us that you had these special advantages in Chemistry, that Mr. Kirkland taught in reference to the coming examination papers—that is your testimony? A. I formed that opinion after the examination, and I still have it.

Q. Do you know what marks you obtained in 1876? A. I know I did very badly in Physics, I do not know how I did in Chemistry.

Q. You made 147 marks on the two subjects in 1876? A. I think my marks in Chemistry were better in 1876.

Q. 92—considerably better? A. Yes.

Q. You have given us to understand that you were specially trained in these subjects in 1876? A. We were.

Q. That the examiner set the questions you had? A. We had those questions.

Q. You must have got those questions up thoroughly? A. I did not. I told you I was not able to get these subjects up in 1876.

Q. Here is the fact that, on the two subjects on which you were specially trained, you made only 12 marks more, with all this special training on the questions certain to appear on the examination paper, than when you had no special training at all? A. How many marks did I get in Chemistry?

Q. 92? A. Then they were much better.

Q. You take the Physics paper also? A. That was a great deal worse.

Q. In 1877, how many did you make? A. In Chemistry I got good marks—in Physics very bad.

Q. In 1877, you made 140 out of 150—you did remarkably well—and you had not all this special advantage given by Mr. Kirkland, who is supposed to have taught with special reference to the examination papers? A. I had the advantage of the Hamilton Collegiate Institute.

Q. They teach Chemistry better than it is taught at the Normal School? A. I cannot say. I answered better.

Q. As to the Algebra Papers—did you notice any resemblance in 1876? A. There is a question on that paper which is just like one, if it is not the same, that he gave us a few days before the examination.

Q. The same in words? A. The same in principle.

Q. Can you only find one that is just the same? A. I think I can see more. We had Horner's method—anyone would be supposed to know that—that is the first and second parts of question 1. No. 2 we might have had, but I do not know enough about it to say.

Q. Did it strike you that there was any sort of marked resemblance between my paper in Algebra and Mr. Kirkland's lectures in Algebra? A. Algebra is a subject I never took much trouble about, so I cannot say. Question 12 is just the same.

Q. You say you do not know much about Chemistry? A. I like Chemistry better than Algebra. I remember that the first part of No. 8 is just the same in principle as an equation given by Mr. Kirkland, and I worked this out on the same principle I did the other.

Q. So, if you had carefully examined the Algebra Paper, and taken notes of Mr. Kirkland's lectures, and compared them, I daresay you would have been just as forcibly struck with the resemblance? A. I cannot say, I could not take notes in Algebra. I did not know enough.

Q. There are a number of questions in Algebra which resemble Mr. Kirkland's lectures? A. After we heard you were to be examiner instead of Professor Young, our questions and the manner of taking them up were changed. We had not the same style we had before. It was changed. Mr. Kirkland gave questions which he said he thought were after your style, and I think this paper is not at all like Professor Young's Paper.

Q. Was your impression that, when I became examiner, the paper would approximate more to Mr. Kirkland's teaching? A. I cannot say. I know that, after we heard you were to be examiner, the course was changed.

Q. The style of teaching was changed? A. Yes.

Q. When did you hear that? A. Mr. Kirkland gave us a number of Examination Papers that you had set in the University.

Q. And he judged my style of examining from what I had set in the University? A. I think so.

Q. That was natural was it not? A. I think so.

Q. If you were training children for the High School, would you not look over previous Examination Papers? A. I think I would have my hobby, as every Examiner has.

Q. Would there not be more temptation for Mr. Kirkland and me to have an understanding about the Algebra Paper than about the Chemistry Paper, as it is more difficult and is worth 225 marks, while Chemistry is worth only 150? A. I have not said that you had an understanding.

Q. What is your opinion? A. I think you would be as likely to have it in one as in the other.

Mr. Davin asked how this was evidence.

The Commissioner said, it was not evidence in any shape.

Q. What was your standing in Algebra in 1875? A. I think it was better than in 1876.

Q. In 1876, when I examined, you made 65 out of 225? A. Yes; but we did not know you were to be Examiner until six weeks or two months before the examination. We had been trained in Professors Young's Paper.

Q. Was there not enough time to get up any questions, if Mr. Kirkland had them? A. There might be for some, but not for me; I am not clever in Algebra.

Q. In 1877, you had time? A. I had five months study at the Hamilton Collegiate Institute, under a very excellent master. I do not think I did him the credit I should have done.

Q. In 1876, when you had this special training in Chemistry, you made only 62 per cent., and in 1877, when you had not those special advantages, you made 98 per cent.? A. I do not say that I benefitted by any knowledge that we had in 1876. In fact, I know I did not, I would not if I could, and I was not able to.

By Mr. Glashan.

Q. You were struck with the resemblance between the Physics paper of 1876, and Mr. Kirkland's teaching, were you not? A. I was.

Q. Were you examined on that paper in 1877? A. I was.

Q. Were you struck with the resemblance between that paper and his teaching? A. I was not. I was not at the Normal School in 1877.

Q. Were you struck with a startling difference in the style of paper? A. I could not be. There is one question the same as one in 1876. I think our instructions in 1876 at the Normal School would not have answered this paper at all.

By Mr. Davin.

Q. Have you any animus or enmity against anybody connected with the Normal School? A. I have not.

Q. You have not against Mr. Kirkland? A. Not the slightest. I never had and I have not now.

Q. You are acquainted with our School system? A. I know the system.

Q. You are aware that the governing body is here in Toronto? A. Yes.

Q. You are aware that the Central Committee exercise a good deal of power—does an Inspector of High Schools exercise a good deal of power? A. I would think so.

Q. Had you good and sufficient reasons then, for concealing the names of those persons who have talked with you over this matter? A. I think that is my own affair.

By Mr. Kirkland.

Q. Where are you teaching? A. At the Institute for the Blind, in Brantford.

Q. Mr. Hunter is the Principal? A. Yes.

Q. A particular friend of Dr. McLellan's? A. He is always honourable to him. I do not know his private opinions about anybody. I have a mind of my own. I do not think any one could influence me against Dr. McLellan or you.

(Examination Papers for July, 1877, put in and marked Exhibit "H.")

William John Robertson, sworn :—

By Mr. Davin.

Q. What is your profession ? A. I am Mathematical Master at the St. Catharines Collegiate Institute.

Q. Are you a graduate of any University ? A. Of Toronto University.

Q. Have you studied the subject of Natural Philosophy ? A. I have.

Q. Look at the Natural Philosophy Examination Paper for second-class candidates for July, 1877 ? A. Yes.

Q. Look at the Statics by Mr. Kirkland ? A .Yes.

(Kirkland's "Elementary Statics" put in and marked Exhibit "I.")

Q. Do you know that that is an authorized book ? A. Yes—"Authorized by the Minister of Education."

Q. Read the first question in the Examination Paper ? A. "State the triangle of forces.

"A weight of 100 lbs. is suspended by two flexible strings, one of which is horizontal and the other inclined at an angle of 60 degrees to the vertical ; what is the tension of each string ?"

Q. Turn to page 24 in Kirkland's Statics—read Exercise 3 ? A. "A weight of 24 lbs. is suspended by two flexible strings, one of which is horizontal, and the other is inclined at an angle of 30 degrees to the vertical direction ; what is the tension in each string ?"

Q. Save for the substitution of 100 lbs. for 24 lbs., and 60 degrees for 30 degrees, are these questions identical ? A. They are.

Q. That question, I understand, belongs to the subject of triangular forces ? A. Yes ; it is given as a rider, I presume.

Q. Read question 2 on the Examination Paper ? A. Show how a force can be resolved into two components at right angles to each other.

"Show by a diagram how it is possible for a sailing vessel to make headway in a direction at an angle of 60 degrees with that of the wind"

Q. Turn to page 33 of Kirkland's Statics, example 3 ? A. "Show how it is possible for a sailing vessel to make way in a direction at right angles to that of the wind." A diagram is attached giving a full explanation.

Q. Read the whole example ? A. "For simplicity, let the sail be one of those attached to the yards of a ship, so that it extends on both sides of O. It is evident that the sail must not be placed along the line A B, for then the only effect of the wind would be to blow the vessel sideways ; nor could the sail be placed with its edge to the wind, that is, along the line O W, for then the wind would merely glide along the sail without producing any effect. Let then the sail be placed between the two positions, as in the direction P Q. Let the line W O represent in magnitude and direction the force of the wind on the sail. Through O draw O R at right angles to P Q, and from W let fall the perpendiculars W X, W R, on P Q. O R respectively. Then the force W O can be resolved into the forces X O and R O. The force X O, in the direction of the plane of the sail, produces no effect in advancing the vessel, and may therefore be left out of consideration. The other component R O is perpendicular to the sail, but not in the direction in which the ship is sailing. Resolve R O into L O and M O. The effect of L O is to propel the vessel in a direction perpendicular to that in which she is sailing. This force is partly counteracted by the keel and the form in which the vessel is built, but more especially by the rudder which turns the head of the vessel towards the wind, and makes her sail sufficiently to the windward to counteract the effect of L O in driving her leeward. There remains M O which acts directly to push the vessel in the required direction. Hence it is seen how the wind, aided by the resistance of the water, is able to make the vessel move in a direction perpendicular to that in which the wind blows."

Q. Does the question in the Examination Paper, in your opinion, point to the solution as you have it there, and the question as you have it in the book ? A. It does. The difference is, that in one case it is at right angles, and in the other it is at 60°, instead of 90°.

Q. "Show by a diagram," and you have the diagram in the book; does that strike you as singular? A. I do not understand you.

Q. Does it strike you as a strange coincidence? A. I would not take it by itself as a strange coincidence.

Q. Read question 3? A. "What is meant by the moment of a force with respect to a given point? State the principle of moments. The whole length of each oar of a boat is 10 feet, and from the hand to the rowlock the distance is 2 feet; each of your men sitting in the boat pulls his oar with a force of 60 lbs; supposing the blades of the oar not to move through the water, find the resultant force propelling the boat."

Q. Look at page 61 of the Statics, exercise 8? A. "The whole length of each oar of a boat is 10 feet, and from the hand to the rowlock the distance is 2 feet 6 inches; each of 8 men sitting in the boat pulls his oar with a force of 50 lbs. Supposing the blades of the oars not to move through the water, find the resultant force propelling the boat."

Q. Are those questions identical? A. They are identical with this exception—the length from the hand to the rowlock in the book is 2 feet 6 inches. In the Examination Paper it is 2 feet. In the book, it is each of 8 men; in the Examination Paper, each of your men, which is evidently a mistake, because you could not work the question, not knowing how many men; 60 lbs. is given in the Examination Paper, 50 lbs. in the book.

Q. Have you read any other books on Natural Philosophy? A. Certainly.

Q. Is that question given in any other books? A. I have never seen it. It may have been.

Q. Read question 4 in the Examination Paper? A. "A beam, the weight of which is 120 lbs., acting at a point one-fourth of its length from the foot is made to rest inclined at an angle of 45° against a smooth vertical wall (the other end resting on the ground), by a horizontal force applied to the foot; find this force."

Q. Read exercise 4, page 65, of the book? A. "A ladder, the weight of which is 90 lbs., acting at a point one-third of its length from the foot, is made to rest against a smooth vertical wall, and inclined to it at an angle of 30° by a force applied horizontally to the foot; find the force."

Q. Are those questions the same? A. With this difference: the weight in the question on the paper is 120 lbs., in the book it is 90 lbs; it acts in the question on the paper one-fourth of its length from the foot, in the book it is one-third; the angle is 45° in the question in the book it is 30°. Otherwise they are the same.

Q. Read question 5? A. "Define centre of gravity, and show how the centre of gravity of a body may be experimentally determined."

"A uniform triangular slab of marble, weighing 120 lbs., is supported by three men at its angular points; find the weight supported by each man."

Q. Read exercise 10, page 86 in the book. A. "A triangular slab of uniform thickness is supported at its three angular points; show that the pressures on the supports are equal to one another."

Q. Is that the same as the rider in the paper? A. The questions are in principle the same, but there is this inversion: in the question on the paper you are given the weight, and asked how much each man would support. In the other question, you are given the answer.

Q. Read question 6 on the paper? A. "In a system of pulleys in which each pulley hangs by a separate string, there are three pulleys of equal weight; the weight attached to the lowest is 32 lbs. and the power is 11 lbs.; find the weight of each pulley."

Q. Look at page 106 in the book, exercise 8? A. "In a system of pulleys in which each pulley hangs by a separate string, there are three pulleys of equal weight; the weight attached to the lowest is 32 lbs. and the power is 11 lbs.; find the weight of each pulley."

Q. Are these two questions identical? A. They are identical. They seem to be verbatim.

Q. Read question 7? A. Explain the principle of virtual velocities, and apply it to find the relation between the power and the weight in a lever of the second order."

Q. Turn to page 131 of the book, exercise 1? A. "Explain the term *virtual velocity*. State the principle of virtual velocities; and show that it holds good in a lever of the third order."

Q Are these, or are they not, the same? A. The first part is the same; in the second part it is in one case in the second order, and in the other the third order. Practically, the questions are the same, as the power and weight are simply interchanged.

Q. Turn to the end of the book, where you have "Results and Hints." Tell me whether those questions are solved there? The question on page 24? A. The question is almost worked out. The wording is: "Produce side 24 backwards and construct right-angled triangle having side making angle 30° with vertical for hypothenuse. The three sides of this triangle are parallel to the three fes, which keeps the point at which it is attached at rest, and, therefore, proportional to them. Let hypothenuse = 2, &c., and horizontal tension is $8\sqrt{3}$, the other $16\sqrt{3}$."

Q. Read the answer to the question on page 65? A. "Produce reactions of wall and ground till they meet. Take moment about this point, and force will = $10\sqrt{3}$ lbs."

Q. Have you the solution there of the question on page 86? A. "Let W be weight acting at C G of slab. Resolve W into $\frac{1}{3}$ W at vertex, and $\frac{2}{3}$ W at point of bisection of the base. Again, resolve $\frac{2}{3}$ W into $\frac{1}{3}$ W, and $\frac{1}{3}$ W, at extremities of base."

Q. Read the answer to the question on page 106? Is there on page 183 an answer to the question as to a system of pulleys each hanging by a separate string? A. The answer is given—8 lbs.

Q. You have the answer to question 2 on the Examination Paper in the body of the book? A. Yes. A similar question is answered in the body of the book. One more question is answered, that is No. 3—the solution of the question relating to the boat and the men rowing.

Q. Two questions are answered in the book, and the other in the "Hints and Results?" A. They are all answered in the Hints and Answers, except that about the vessel which is answered in the body of the book.

Q. Tell me whether the questions in the Examination Paper are given in the same order of the subjects as they are in the book? A. They are.

Q. I believe that Magnus, Newth, Wormell and Hamblin Smith have all written on the subject? A. All four have written on the subject.

Q. Are you aware whether they adopt the same order of subjects as this book? A. Not precisely.

Q. Magnus is different in the order of subject? A. Somewhat.

Q. Both Newth and Wormell are different? A. I believe they are somewhat different.

Q. Is Hamblin Smith different? A. Yes, he is different.

Q. Can you tell me whether any one work that you are acquainted with besides Kirkland's Statics contains all these questions? A. I am not aware of any.

Q. Do those questions which you have read out from Kirkland's Statics receive special attention in Kirkland? A. Some of them do receive more attention than in any other Elementary text-book I am aware of. I know of no book that gives prominence to the 1st, 2nd, 3rd and 4th questions to the same extent.

Q. Did it become known among the teachers in your part of the country that the Examination Paper for July, 1877, corresponded as far as you have proved with Kirkland's book? A. I believe it was known to some of them; they expressed their opinion on the subject.

Q. How soon after the examination took place? A. At the time the examination took place. I was not where I am teaching, I was east.

Q. Where? A. In the town of Perth.

Q. When did it come to your knowledge that there was this similarity? A. A a few days after the examination in Natural Philosophy, a friend gave me a copy of the paper from curiosity to see what it was like, and I was struck with the similarity of the first four questions in particular, to questions in Mr. Kirkland's Statics.

Q. Did that, to your knowledge, immediately add to a great demand for Kirkland's book? A. I can hardly give an opinion on that subject. All I know is, that where I am teaching the book was only out about a month or six weeks before the examination, and in the hands of a few in the school. Since that it has been in the hands of them all. I cannot say I connect them together as cause and effect.

By Mr. Edgar.

Q. Do you know when that book was published? A. I cannot state the time definitely, but I think it reached our school either the first or second week in May—the second week in May, I think.

By Dr. McLellan.

Q. You compared the Examination Paper very carefully with Kirkland's Statics? A. Tolerably carefully.

Q. With any other books? A. Very carefully with Magnus, with Warmell, with Newth, and with Hamblin Smith, and I think I looked at Tomlinson.

Q. Do you think those questions you refer to are peculiar to Kirkland? A. Not wholly peculiar; I look upon it this way, that the questions may be all found, perhaps, in different text-books, scattered; but I do not know any book that contains them all, or gives the same prominence to some of them.

Q. You compared the paper as carefully with Magnus as with Kirkland? A. I did.

Q. You admit that the 7th question is not worth talking about? A. That is ordinary book-work.

Q. It is not relevant? A. It is in my opinion.

Q. It is a book-work question? A. Yes, but there is more importance given to it in Kirkland than in any other book.

Q. Are you aware that there are four questions out of the six in Magnus that are just as similar as those in Kirkland? A. I am perfectly aware of it.

Q. The first question, as far as the words go, is even nearer to the question in Magnus? A. I think the question in Kirkland and that in Magnus on the 1st question in the paper are identical.

Q. Even more close in Magnus? A. I think they are exactly the same.

Q. Are you aware that the second question is equally close, as far as the wording is concerned, to one in Magnus? A. No, I think it is not; it is a general question in Magnus; here it is special.

Q. Are you aware that the 3rd question is just as closely given in Wormell as in Kirkland? A. I am not; I have looked over Wormell carefully and worked over the whole extent, and I do not remember the question; I will not say it is not there, but I have no recollection of it.

Q. You have not read Feer's Mechanics? A. No.

Q. Are you aware that the 3rd question also occurs in Feer's in almost the same language? A. It may.

Q. Are you aware that the 4th question occurs just as closely, even as to wording in Magnus? A. I am aware of one question of the same kind as an example.

Q. Are you aware that the 5th question is just as near to Magnus, even in point of wording, as to Kirkland? A. Yes, I think so.

Q. So there are four of the questions that are just as close, even in wording, to Magnus as to Kirkland? A. I am quite aware of that.

Q. Have you seen the 5th question anywhere else besides in Magnus; did you ever see an Elementary Mechanics that had not got it? A. The principle is in common to all text-books.

Q. Do you know that it is found in Todhunter's Mechanics, Hamblin Smith's, Cherriman's, and others? A. I know it is a very common question.

Q. Are you aware that the 6th question occurs more closely in Hamblin Smith than in Kirkland? A. I am aware it is in Hamblin Smith; I think it is the same question.

Q. It would appear then that these questions are not peculiar to Kirkland? A. I did not state they were all peculiar to Kirkland's book, but they are all found with slight changes in Kirkland's work, but no other work that I am acquainted with contains them all.

Q. Has it ever struck you that a greater number of questions on the paper might naturally be expected to be found in Kirkland than in any other single text-book? A. No, I do not see any good reason.

Q. Magnus runs over a wide field? A. In some respects.

Q. Mr. Kirkland's object is what? A. To prepare first and second-class candidates, it says, "Principally designed for the use of candidates for first and second-class certificates, and for the Intermediate Examination."

Q. So far as first-class is concerned, it can only be a partial preparation? A. I do not think it fit for first-class candidates.

Q. Because it does not use Trigonometry or the six books of Euclid? A. No.

Q. Do you not think the range must necessarily have been narrower than these books that go over a wider field? A. Practically, I do not see that the range is very limited in preparing questions for second-class candidates.

Q. Are you the author of the Memorandum which appears in the *Mail* on this subject? A. I sent no memorandum to the *Mail*.

Q. Are you the author of it? A. I decline to say.

Q. In that memorandum you stated that there is a wide range? A. I decline to say.

Q. Do you mean to say that in the narrow course prescribed for second class certificates and the Intermediate Examination for young pupils in the High Schools, if an Examiner fairly confines himself to this, he can find an endless or great variety of subjects? A. Most certainly, a great variety.

Q. So the Examiner need not repeat the available questions? A. He need not.

Q. You have heard of Todhunter? A. I have.

Q. Have you read his work entitled "Conflict of Studies"? A. No.

Q. Since Mr. Kirkland's book is prepared specially for the pupils I have referred to, and since his book is as large as Hamblin Smith or Magnus, and as he has selected questions specially for these candidates, would you not naturally expect that his book would contain a greater number of these questions than any other single book? A. No. There is a great difference in the manner in which authors treat those subjects.

Q. Mr. Kirkland selects from a score of works, suitable questions for candidates in these narrow limits, and yet you say his book is not likely to contain a greater number of those type questions? A. I do not see any necessity for it, and, if you look back to preceding years, you will find the papers have very little resemblance to that of this year.

By Mr. Davin.

Q. How many pages are there in Magnus? A. Including answers, there seem to be 318 pages.

Q. How many pages are there in Kirkland's book? A. 197.

Q. In Magnus you have only four of these questions? A. Only four.

Q. I understand you to say the questions appear in rotation as they appear in Kirkland's book? A. They do.

By Dr. McLellan.

Q. That book of Magnus includes something more? A. Yes; Dynamics as well as Statics.

Q. Since that includes the second part of Natural Philosophy, are there 300 pages devoted to statics? A. Of course you are aware that dynamics includes a part of what Mr. Kirkland calls Statics; the Statics begins on page 127—deduct that from 318, you will find the pages devoted to statics—that is, 191 pages.

Q. The entire number of pages in Kirkland's is 197? A. Yes. It would leave taking out a few answers in dynamics, 185 in Magnus, and Kirkland's is 197.

By Mr. Glashan.

Q. Is the subject treated more widely in Magnus than in Kirkland? A. I do not think the subject of Virtual Velocities is taken up in Magnus at all. I think Mr. Kirkland's work has taken up more subjects than Magnus has, that is my impression.

Q. Does it more closely follow the course followed by second-class teachers and Intermediate pupils than Magnus? A. I cannot say what the course for second class is.

Q. Can you state whether any angles are used other than 30°, 45°, 60°, 90° and 120° in Mr. Kirkland's book? A. I think not.

Q. Have questions requiring the relations of other angles than these been asked on the examinations? A. Not that I am aware of—at least they should not.

Q. Would you think it fair, considering the Euclid, to ask a question on second-class papers which would involve a deduction from the 3rd Book of Euclid? A. Yes, if it was a very familiar deduction, and the teacher was supposed to bring it in, as I would introduce similar triangles in Elementary Statics.

Q. Have you ever seen one on second-class or Intermediate papers involving a deduction from the 3rd Book? A. I cannot recollect any such question.

Q. How far does the Euclid course go for Intermediate and second class? A. The first two books.

Q. Do you think it would be fair to ask a deduction from the 3rd Book in Natural Philosophy, although the pupils have not studied it? A. No, unless it was an extremely familiar one. It would be fair enough, but only under exceptional circumstances.

Q. You would not say it has been actually set? A. I cannot say that.

Q. We would be allowed to use the definitions of the 3rd Book? A. No, I think not, except one which is in the first. Perhaps there are some you might use. The definition of the segment of a circle you might use. Would you allow me to give my reasons why I have arrived at the conclusion that this paper was founded on the work edited by Mr. Kirkland, that Mr. Kirkland's book has been taken as the basis.

The Commissioner.—There is no objection.

The Witness.—Of course, the first reason for coming to that conclusion is, that the questions are, with slight changes, involving no particular principle or anything of importance, almost identical in all essential respects. In many cases, the wording is identical. To the objection to be naturally made, and which has been made, that many of these questions are to be found in other books. I was perfectly well aware of it, and I thought it extremely probable that all those questions could be found somewhere. I did not imagine that Mr. Kirkland's work was original. Some of these problems are to be found everywhere; but what strengthened my opinion is that, while some of these problems are found in different works, no one work contains them all except Mr. Kirkland's work. Secondly, some of these problems are not treated with much fulness in our ordinary text-books—they are in this; for instance, the very first question does not receive much attention, the question in regard to sailing a vessel against the wind—though it is in Magnus & Tomlinson, it does not receive special attention;—and question No. 3 is rather peculiar, and the question about the beam resting against the wall is found in different works, but Mr. Kirkland has given it special prominence in his work. Both No. 5 and No. 6 are very ordinary questions in any text-book. Of course, the force of the argument is, that they come in connection with the others and strengthen the chain of evidence. Question 6, in particular, is found in Hamblin Smith. I do not presume that it is peculiar to either Hamblin Smith or Kirkland. Question 7 is very poorly treated in ordinary text-books, and very few examples are given. Mr. Kirkland has given more attention to it. Hamblin Smith and Magnus left it out altogether. I think Wormell has referred to it very indefinitely, and practically the questions on it are very seldom given. The last three questions, 5, 6 and 7, are only of importance in coming to a conclusion when taken in connection with the rest. In the next place, there is the order of the questions. Mr. Kirkland has taken them up in this order: parallelogram of forces, triangle of forces, resolution of forces, parallel forces, moments of forces, centre of gravity, machines, and so forth. No one of these text-books, Magnus included—and Magnus is the book Mr. Kirkland's most resembles, because they have gone to the same source for their examples, or Mr. Kirkland has adopted Mr. Magnus—not one of these text-books takes up the questions in the same order. Magnus takes machines and puts it among dynamics, and Mr. Kirkland puts it among statics as it is usually put. There is another point in Magnus: The rider to question 1 on the triangle of forces. You will find the same rider in Magnus in a class of miscellaneous questions without any reference to the triangle of forces. It would seem that it did not refer to it, because there is a question on that coming after it. Question 2, relating to the sailing of the vessel, receives special attention from Kirkland, not only giving the diagram to illustrate it, but the example afterwards in the exercise. It is

referred to in Magnus, but in such a way that no special attention is attached to it. It is also in the miscellaneous questions. Then the question on rowing struck me forcibly, because I never saw it anywhere else. He has given a very full solution to it. Question 4 refers to a very useful question which does not receive enough attention in some books. Mr. Kirkland has devoted a whole exercise to it. These are the reasons I had—first, the similarity of the questions; second, the order of the questions, the fact that all the questions are found in one book only, and then that they come up in the same order in Kirkland's statics and the Examination Paper, and do not come up the same way in other books.

By Mr. Kirkland.

Q. Look at the wheel and axle in Magnus, and state whether the principle of virtual velocity is treated of in Magnus? A. It may be given under that name, but it is not given under statics. This is under the subject of dynamics.

Q. The mechanical powers are not treated at all under statics? A. Not at all.

By Mr. Glashan.

Q. What is the meaning of Dynamics in Magnus's work? A. I have not examined it to see. I suppose it refers to laws of motion.

Q. Are you aware what is the general meaning attached to Dynamics among the leading Physicists in England? A. I do not come here to be cross-examined by a man of lower standing in the University than myself.

The Commissioner said the answer was a most improper one.

The witness was taken ill, and was allowed to retire.

After an interval he returned, and the examination was resumed.

By the Commissioner.

Q. Does Magnus use the word Dynamics to include Statics? A. I do not think he does it in the same sense. I have not examined Mr. Magnus's Statics. The book has only been in my hands a very short time, and I have had no time to pay attention to any part of it, except the Statics; but, when he includes simple machines in Dynamics, it is easy to see that he treats it on a different principle from usual. He treats it on the principle of work done, which generally comes under Dynamics.

(Magnus's Elementary Mechanics put in and marked Exhibit "J."

Kate Grant, recalled:—

The Secretary read the portion of Miss Montgomery's evidence relating to the witness.

By Mr. Edgar.

Q. You have heard that statement read—is that the case? A. It is not the case.

Q. You heard Miss Montgomery giving her evidence? A. I did.

By Mr. Davin.

Q. Were you a candidate at that time with Miss Montgomery? A. I was.

Q. Did you frequently speak about the work you had to do in Mr. Kirkland's class? A. I cannot say positively. I think it likely we did.

Q. Surely you remember whether you ever spoke on the work or not? A. We were schoolmates together, and I think it altogether likely we did.

Q. Do you remember whether you ever did or not? A. I do not remember.

Q. Whether you ever spoke about the work? A. I do not remember.

Q. You might have spoken, and you do not remember? A. I might have spoken. I never said that.

By Mr. Kirkland.

Q. Is it true? A. It is not true.

Q. Is Miss Montgomery's evidence true or false? A. It is not true.

Q. Did I ever take you into my room and give you any information other than answering the questions you came to ask me? A. You never did.

William John Robinson, recalled:—

By Mr. Davin.

(McLellan and Kirkland's Examination Papers in Arithmetic put in, and marked Exhibit "K.")

Q. Look at the Examination Papers for July, 1877, First-class Teachers, Arithmetic, No. 32. A. I have it.

Q. Read the second question. A. "A grocer bought a quantity of tea at 40c. per lb., and fixed a price on it to gain $23\frac{17}{21}$ per cent., but in selling it he inadvertently used a pound weight which was $\frac{3}{4}$ oz. too light, thus gaining $31.20 more than he would have gained if the weight had been true. How much did he buy?"

Q. Turn to page 27 of McLellan and Kirkland's Examination Papers in Arithmetic, No. 13. A. "A merchant bought a quantity of Canadian tweed, and marked it at an advance of 25 per cent. on cost, and in selling it used a yard measure which was $\frac{3}{4}$ of an inch too short, his entire gain being $124.80; find the cost price of the cloth, and the amount gained by using the false measure."

Q. Is that worked out there? A. It is.

Q. Is that question the same as the question in the Examination Paper? A. There are some differences—the difference in the material, one being tea and the other cloth; and the difference in the measure, one being yards and the other pounds.

Q. Could it be worked out in the same way? A. Not wholly—part of the answer could. What is given in the examination paper is that the gain was $31.20 more than the proper gain. In the book the whole gain, legitimate and illegitimate, is given as $124 80. In the book, you are asked to find not only the cost price, but the illegitimate gain. To a great extent they are the same.

Q. Look at question 3, on the Examination Paper, No. 1, sub-question. A. "The interest on a certain sum for six years is $261, and the discount for the same time is $180. Find the sum and the rate per cent."

Q. Turn to page 248 of the book, and read the rider to question 3. A. "The interest on a sum of money for two years is $71\frac{133}{160}$, and the discount for the same is $63\frac{17}{20}$; find the rate per cent. and the sum of money."

Q. Are these two the same? A. The same principle is involved. There is a different number of years, and a different rate per cent.

Q. Read question 4 in the paper. A. "How much U. S. currency will be required to purchase U. S. six per cent. bonds, interest payable in gold, to give an income of $1,113 in currency, gold being at 106, and the broker's commission $\frac{3}{8}$ per cent. on the par value of the bonds?"

Q. Turn to page 21, problem 16, in the book. A. "How much currency is required to purchase U. S. five per cent. bonds, interest payable in gold, to yield an income of $795 in currency, gold being at a premium of six per cent., and the broker's commission being $\frac{1}{4}$ per cent. on the par value of the bonds?"

Q. Is that worked out there? A. It is.

Q. Are these questions the same? A. They are not the same, but the same principle is involved—it is simply an interchange of numbers.

Q. Read question 5 on the paper. A. "I bought a quantity of tea from Thwaite, Eby & Co., Toronto, who allowed me a discount of four per cent. on the price charged for the tea, and accepted for the reduced amount my note, payable in six months; I sold the tea at once for a note of $510.51, payable in three months, and, allowing money to be worth eight per cent. per annum, I found I had made a profit of $18\frac{2}{11}$ per cent. Find the price first charged for the tea."

Q. Turn to page 30 of the book, read problem 19. A. "If I am allowed $1\frac{1}{4}$ per cent. reduction on an amount charged to me for goods, and give my acceptance at five months for the net sum; and if by selling the goods forthwith for a bill of £162 12s. 2d., payable in seven months, my present gain is $11\frac{1}{9}$ per cent.; find the amount originally charged to me, money being worth five per cent. per annum."

Q. Is the question worked out in the book? A. It is.

Q. Are these questions the same? A. They are the same in principle, per-centage and numbers being interchanged.

Q. Will you note—has the question seven points,—1st, goods bought; 2nd, discount allowed; 3rd, note given; 4th, goods sold immediately; 5th, time note accepted for payment; 6th, certain value of money; 7th, required, the cost price. Is that the order of the points? A. Yes. There is a little difference in the other, I think, but very little.

Q, The question is solved? A. Yes.

Q. Turn to question 6. A. "From 2 lbs. of standard gold are coined 89 guineas, and from 1 lb. standard silver 66 shillings, $8\frac{1}{3}$ per cent. of standard gold being alloy, and $7\frac{1}{2}$ per cent. of standard silver. If 24 pennies are coined from 1 lb. avoirdupois, calculate the ratio of the values of gold and copper."

Q. Look at page 13 of the book, question 10? A. "Calculate the ratio between the values of gold and silver, it being given that 2 lbs. of standard gold are coined into 89 guineas, and 1 lb. of standard silver is coined into 66 shillings, and that $\frac{1}{12}$ of standard gold and $\frac{3}{40}$ of standard silver are alloy."

Q. Is the question worked out? A. Yes.

Q. Are these questions the same? A. There is a little difference, this way: there are three elements in the question on the Examination Paper, and only two in the book. There are gold, silver and copper in the one, and only gold and silver in the other.

Q. Read question 9 in the Examination Paper. A. "To do a certain piece of work for which $120 is paid, B would take $2\frac{2}{3}$ times as long as A and C together; and C $4\frac{1}{2}$ times as long as A and B together; and all three working together, actually do the work in $2\frac{2}{3}$ days; divide fairly among them the money paid for the work."

Q. Turn to page 22 in the book. A. "To do a certain piece of work B would take twice as long as A and C together, and C twice as long as A and B together; and A, B and C together actually do it in 5 days; $60 is paid for the work; divide this fairly among them."

Q. Is the question worked out there? A. It is.

Q. Is that the same as the question on the Examination Paper? A. It is in all essential points.

Q. Has your attention been called to this book by anybody since its publication? Has it been called by Mr. Gage? A. Not that I am aware of. I got the book of my own accord.

Q. Have you had a conversation with any of the agents of Adam Miller and Company about this book? A. Not that I am aware of.

Q. Had you a conversation with anyone connected with the Central Committee about this book? A. I might likely have referred to it in common conversation. I have referred to it in conversation with several people.

Q. Has nobody asked you to use your influence to introduce this book? A. Where?

Q. Wherever you might happen to be teaching? A. I have had conversations on the subject, which I consider more or less confidential, and do not care about divulging, unless it is material that I should answer the question.

The question was not pressed.

By Dr. McLellan.

Q. Of course there is a resemblance in these questions. Are they peculiar to the "Examination Papers," or are they found in other books? A. Arithmetical questions run in a certain groove, many of them.

Q. Are you familiar with the preceding Examination Papers of the Central Committee? A. Yes, perfectly.

Q. Some of these occur in preceding Examination Papers, do they not? A. One does, I think.

Q. And do you not remember that about the shocks? A. I do not remember just now, perhaps it does occur.

Q. Have you had time to compare the papers set for the last Entrance Examination, the Third-class Examination, and the Second-class Examination with the book? A. I have not; I never gave much attention to the First-class Paper, until I saw public attention called to it in the newspapers.

Q. You are not prepared to state that there is any resemblance between these third-class papers and the book? A. I am not very familiar with the third-class. It does not come much under my attention. I am a little more acquainted with the Entrance, because I examined the paper, but it left no impression on my mind.

Q. But out of the four papers, involving some forty-four problems, you find a strong resemblance on the first-class on four or five questions—is that what struck you? A. I was not forcibly struck with any of the questions.

Q. You do not think those questions are peculiar to any book? A. Several of the questions are not peculiar to any book. They are ordinary questions given in our classes, and made up at any time. Perhaps more prominence is given to them in this book than in any other.

Q. This question involving the five points, have you seen it in any other books? A. I am not familiar with it.

Q. You are familiar with Colenso's Arithmetic? A. I never use it.

By Mr. Davin.

Q. I must press my previous question. I am instructed to press it. Did. Mr. McLellan urge you to introduce this book of his—"Examination Papers?" A. He did not urge me to do it.

Q. Did he ask you? A. We had a casual conversation when he was inspecting the school last year, and before leaving he asked me if I thought the book was worthy, or if I thought it would be of advantage to the pupils to introduce it.

By Dr. McLellan.

Q. Was it not more in connection with the teachers? A. It might have been. I understood it that way.

By Mr. Davin.

Q. He canvassed you for the book? A. That depends on the definition of the word "canvass."

Q. He asked you? A. He did.

Q. Did he make you an offer of his services to get you a better position if you should need one? A. We had conversations about positions, and improvement in case of my accepting another position. He said in an off-hand manner that, in case any better position should open, he would be very glad to use his influence in my behalf.

Q. That took place in the same conversation in which the book was mentioned? A. Yes, part of it, and part had no connection with the book.

By Dr. McLellan.

Q. Was not that while I was dining with you, or leaving your house? A. It took place when you were leaving the school, after the closing of the inspection—leaving to take the train.

Q. I think it took place on the way from your house to the school, after dining with you? A. It was just as you were leaving the school.

Q. The conversation about your position took place at a different time? A. That was referred to at different times.

Q. You intimated to me that you thought you should have a superior position rather

than a subordinate one, in view of your abilities, and I said I would do anything I could? A. Yes.

Q. You did not imagine that I said that, to secure your co-operation to promote the sale of the book? A. That was not my opinion at the time. Leaving the school, you questioned me if I thought the book likely to be of advantage to the teachers, and if so, to use my influence to introduce it into the school. I thought the request rather peculiar, as I was going to use my influence anyway, and I was not likely to be biassed. I mentioned to others afterwards that it seemed to me peculiar, that Mr. McLellan was anxious to sell the book. The explanation was, that he had been in ill health for some time and he was anxious to sell the book, to be in a position in case of any emergencies that might occur.

Q. You do not suppose that I would ask you that unless very intimate and friendly relations existed between us? A. Of course, it was in friendly conversations.

By Mr. Glashan.

Q. You remember the 2nd class papers of 1876? A. I do.

Q. Look at No. 2. Do you recognize anything of that being similar to the second class of last year? A. The question in this text-book that is solved I think is the same question that was in the paper of 1876. I suppose it was taken as a sample question to solve.

Q. Is not No. 3 of 1877 similar to what was given in 1876? A. No. One is to find the difference between the interest and the discount. The other is given the interest and given the discount, to find the sum.

Q Look at No. 9 on that paper. Do you remember seeing a question like that on the Intermediate Papers? A. I think there was a question like that on the first Intermediate Paper.

By Dr. McLellan.

Q. When I inspected St. Catharines' Collegiate Institute a year and a half ago, were you there? A. I was not in the school.

Q. You were there at my first inspection, were you not? A. I was not. I was ill.

Q. You were in St. Catharines? A. I was.

Q. Were you not at that time being treated somewhat unjustly? A. I considered so at the time.

Q. Complaints were made to me. I knew you were being treated unjustly. You had been seriously ill with typhoid fever, had you not? A. Yes.

Q. Did you not send a friend to request me to call on you? A. I did.

Q. Mr. Campbell? A. Yes.

Q. Did you not give me to understand that you had been requested to resign your position—had received a letter from the head master? A. I had.

Q. Did you not ask me to examine the mathematical classes very carefully, and vindicate you if I could? A. Perhaps I did.

Q. You had found the mathematical classes very low? A. At zero.

Q. There were persons making notes of every failure to make a point against you? A. Yes.

Q. Did I not state in my official report that, though the mathematical classes were not very high, they showed evidences of good teaching on your part? A. I believe so. Allow me to make a statement. I simply say that friendly relations always have existed between Mr. McLellan and myself up to the present moment, and there is no animus existing on my part whatever.

Mr. Davin proposed to recall Miss Montgomery to contradict Miss Grant's evidence.

The Commissioner declined to allow it.

GEORGE DIXON, sworn:—

BY DR. MCLELLAN.

Q. Have you stated that you could prove conclusively that there is collusion between a Normal School Master and some of the Examiners? A. I do not know that I ever used those words. I do not know that I ever used the word "conclusively."

Q. Did you say that you could prove it? A. I think I stated that I could prove from Mr. Brown's notes or evidence that there was strong probability that there was collusion between them.

Q. Was that the only proof on which you founded that statement? A. I have heard reports about it from year to year.

Q. Was that the only direct evidence on which you could base it? A. Yes.

Q. Had you possession of those letters which were handed in last night, said to have been written by me to Mr. Teefy? A. I once had possession of them.

Q. Did Mr. Teefy leave them in your custody? A. He gave them to me.

Q. For the purpose of being used in any way against me? A. He gave them to me unconditionally in 1874. They have been in my possession ever since.

Q. Did you furnish them to the *Mail*? A. I did not.

Q. Did you give them to any one who supplied them to the *Mail*? A. I will not answer that question.

Q. Did Mr. Teefy entrust them to your custody with the understanding that they were to be given up to any one at all? A. There was no condition.

Q. Have you had meetings with any person in order to work up the case, to secure proof in connection with this matter? A. I have had conversations with several people, and, if two constitute a meeting, I have had meetings.

Q. I think you came to Toronto with certain gentlemen on this mission of procuring evidence and making as strong proof as possible in support of the charges against the Central Committee? A. I did not come to Toronto to collect evidence.

Q. Did you come in connexion with the matter? A. I am down here now in connexion with it.

Q. Will you name the gentlemen with whom you met here and elsewhere in connexion with this matter? A. I have here met several parties and talked with them about it.

Q. Mention the parties. A. I met Mr. McMurchy.

Q. Do you think he has any information to give that will be valuable to throw light on the subject? A. I do not know.

Q. Did you hear him say he had? A. No; I do not think I did.

Q. You do not think he has? A. I do not think he has.

Q. Was there any other gentleman you had any interview with in connexion with this matter? A. I have had an interview with Mr. McAllister.

Q. Had you an interview with Mr. Seath? A. Yes; I have spoken to him.

Q. Has he any proof he can advance, do you think? A. I do not know.

Q. Did you ever hear him say so? A. I do not think I have.

Q. Did he come with you to Toronto, and meet Mr. McAllister and Mr. McMurchy for the purpose of getting up as strong a case as possible? A. I do not know for what purpose he was here. I will not swear for what purpose.

Q. Did you meet him here with those gentlemen? A. Yes.

Q. Once? A. Once.

Q. Once only? A. No; I met him last night.

Q. You have met him before? A. Once before.

Q. You have met him three times then? A. I think I have met him three times.

Q. Did you meet him by appointment on all or any of those occasions? A. I think on one occasion I did.

Q. Was there any other gentleman besides those you have mentioned that you met here or who took any part in getting up evidence to criminate the Central Committee? A. I have seen Mr. Davin.

Q. Anyone else? A. And I have seen Mr. Belford.

Q. Any other gentleman connected with the High Schools? A. I have seen a large number of High School masters.

Q. Do you think that any of these three gentlemen—Mr. Seath, Mr. McMurchy, or Mr. McAllister—can give us any information that will be valuable here? A. I cannot speak for them.

Q. Was Mr. Bigg of Brockville, in connexion with you at all? A. I never saw him that I know of.

Q. You do not know that he had anything to do with getting up evidence? A. Mr Tilley told me this morning that he had. That is the first time I ever heard his name I believe I never heard it before.

Q. Do you think it would be worth while to call these gentlemen in connection with the matter? A. I do not know.

Q. Do you think they have anything stronger to give than you have? A. I do not know. They may have.

By Professor Young.

Q. Then the only ground you have, I understand, against any member of the Central Committee, in proof of collusion, or of the existence of a ring on anything, is founded on the papers of Mr. Brown? A. Yes. That was the evidence which caused me to move in the matter. I wish to state how this came into my possession. Mr. Ratcliffe, a student in our school, came to me after the vacation, and told me there was no use his remaining in my school, because the Normal School students knew the questions before the examination, and we could not compete with them, and he brought Mr. Brown and his notebook to prove it, and on comparing his notes with the Examination Papers, I was satisfied there was something in it.

By Mr. Kirkland.

Q. If it should be proved in evidence that Normal School students have not stood higher in Chemistry or Physics than in other subjects, what would your inference be? A. I do not think I could draw any inference from that.

Q. If there has been any collusion, would you not expect that they would stand higher in subjects in which there was collusion, than in subjects in which there was not? A. Yes. I think I would fairly come to that conclusion.

Q. Then if it is proved in evidence that they have not stood higher in those than in others, what would you infer from that? A. I do not know that I could infer anything.

Q. Would you not infer that there was no collusion? A. I could not infer anything regarding collusion.

Q. If there was collusion they would stand higher? A. I should think so. There might be collusion, and yet they might not stand higher. If, for instance, they did not share in the belief that these notes were improperly given, I can easily understand their not standing high on that subject. They would not receive these hints with confidence. There might be collusion, and still they might not do well.

Q. Then there would be no harm done? A. Practically, there would be no harm done.

By Mr. Hughes.

Q. Has there not been an improvement in the character of the text-books used in the Public and High Schools, within the last year—an improvement in quality? A. In some respects I think there has been an improvement.

Q. Do you mean in the paper and mechanical execution, binding, and so forth? A. I refer to that. Of course, there are no text-books that we had not access to before this year.

By Mr. Davin.

Q. I understand you to say, that your reason for paying some attention to Brown's notebook was, that one of the students had told you it was impossiblo to compete with the students of the Normal School? A. Yes.

Q. What reason did he give?

The Commissioner.—That is not evidence.

Q. If Mr. Kirkland's pupils took higher marks than the students in other places, the effect would be to give great advantage to Mr. Kirkland and the Normal School in Toronto? A. Yes.

JOHN R. TEEFY, sworn:—

BY THE COMMISSIONER.

Q. Have you any information to give in relation to these charges? A. Nothing, except in regard to these letters.

BY MR. DAVIN.

Q. Did you send Mr. McLellan any Examination Papers for first, second and third-class teachers' examinations? A. I sent no Examination Papers for any of the certificates.

Q. Did you ever offer any? A. No, I offered no papers.

Q. Did Mr. McLellan, on the 26th January, 1873, write to you: "I accept your offer, Arithmetic Papers (1st, 2nd, 3rd class) for teachers' examination; and 1st and 2nd years' answers to Arithmetic Papers will be required. And if you indicate solutions of any *problems* and *riders* for University work, it will relieve me of a good deal of work?" A. I believe he did.

Q. Look at the letter of January 22nd, 1873. Did you receive that letter from Dr. McLellan? A. Yes.

[Letter "B 1" read.]

Q. That letter is written by Dr. McLellan? A. I received it as from Dr. McLellan.

Q. Did you answer it? A. I believe I did.

Q. Who is the "Mr. O'Donohue" referred to? A. Mr. John O'Donohue.

Q. The late M.P. for East Toronto? A. Yes, I believe so.

Q. The Barrister? A. Yes.

Q. Look at the letter of January 26th, 1873. That seems to have been in answer to yours. Just read it.

[Letter "B 2" read.]

Q. Did you "make the papers as original as possible?" A. What papers?

Q. Did you send him papers in answer to that? A. I do not know to what papers you refer exactly.

Q. Read the next letters.

[Letters "B 3," "B 4," "B 5," "B 6," and "B 7" read.]

Q. Who is "Dr. W?" A. I believe it is Dr. Wilson.

Q. Professor of English, at the University of Toronto? A. Yes.

Q. In the letter of January 22nd, 1873, Mr. McLellan promises you: "I'll do all I can for you for a position in one of the Normal Schools," and he urges you: "I saw Mr. O'Donohue (whom your father also must see) he will aid you;" and, immediately after promising to help you, he says: "By the way I am very hard-worked this half year, would you have time to make me up a few problems and questions in mathematics in strict confidence?" What did you do when you read that part of the letter? Did you make up the problems? A. I made up some problems.

Q. Did you send them to him? A. I did.

Q. On the receipt of that letter—after receiving that letter? A. After receiving it, certainly.

Q. Did you regard the promise, to do something for you, as an incentive to work out those problems? Did you regard it as a bribe to work out those problems? A. Not at all.

Q. Did you regard it as an incentive to work them out? A. No; it was more from a love of mathematics than anything else.

Q. You were dissatisfied with your position? A. Not with my position, but I had a dislike to the place where I was.

Q. You would have liked to have a larger salary? A. Yes.

Q. He promises you a larger salary? A. No.

Q. He promised you more money? A. He promised to get me a better situation.

Q. In the letter of the 26th January, 1873, he says: "I accept your offer, Arithmetic Papers (1st, 2nd, 3rd class) for Teachers' Examination; and 1st and 2nd years' answers to Arithmetic Papers will be required. And if you indicated solutions of any *Problems* and *Riders* for University work, it will relieve me of a good deal of work." What offer does that refer to? It was apparently made in answer to his previous letter. What offer did you make him? A. I made him an offer to make up some of the papers to which he referred.

Q. For the 1st, 2nd, and 3rd class examinations? A. Yes.

Q. For Teachers' Examinations? A. Yes; he specifies them.

Q. Where were these Teachers' Examinations held? A. Throughout the country.

Q. Did you see the Examination Papers afterwards? A. What Examination Papers?

Q. The Examination Papers prepared by Mr. McLellan for 1873? A. I saw the Papers for 1873.

Q. Did you indicate solutions of problems and riders for University work? A. I think I did.

Q. Mr. McLellan was anxious for his reputation for originality—did you make them original? A. I did.

Q What did you understand by Mr. McLellan's telling you: "I stand well with Dr. R. and with the Government, and you may rely upon my doing my best?" Did you regard that as an incentive to work out these problems? A. No.

Q. In the letter of February 7th, 1873, he says: "I have the pass paper, and your first rider will do well for that"—did that refer to a rider you sent for the pass paper? A. Yes. He says, "I have the pass paper," that is, he is examining in the pass paper.

Q. He says: "I'll look sharp for your interests"—did you understand that as a bribe? A. No. I never understood Dr. McLellan to bribe me at all.

Q. "Make up two or three stiff problems for first class arithmetic paper—a gold medal is to be given for best man at ensuing examination, and I wish a test question or two"—did you give the "test question?" A. No, I did not.

Q. Did you give a "stiff" question? A. I did not give any problem for first-class arithmetic paper at all.

Q. Did you send any problems, stiff or limber, in answer to that letter? A. I cannot say whether I sent them in answer to that letter or not.

Q. At any time? A. I had sent some in the early part of that year, for Examination Papers in the University.

Q. Did you make out examination questions for the gold medal? A. No, I did not.

Mr. Edgar objected that the inquiry was not into University examinations.

Q. In the letter of the 17th February, 1873, he says: "Thanks—your aid is now a great favour"—between the 7th and the 17th of February, you must have sent him some papers? A. I would not be certain whether I sent him some problems, or whether it was a further offer to make up papers.

Q. "If I succeed Dr. R., there'll be no doubt about you. Perhaps you could aid me. Write Mr. O'Donohoe, &c., &c., giving your views as to how I inspect, stand with the masters." What were you to write to John O'Donohoe for? A. If I could conscientiously recommend—

The Commissioner.—I do not see how this affects the matter.

Q. Could you, while you were preparing these questions for the Normal School and for the University, have prepared students for those very examinations for which you were giving papers, had you liked to do so? A. I do not understand.

Q When you were sending up those papers to Mr. McLellan for examinations to be held all over the country and at the University, was it not in your power to have coached students for those very examinations for which you were preparing papers? A. Certainly.

Q. Did you do it? A. As to University students, no.

Q. As to Normal School students, did you? A. I had no students in the High

School at Beamsville at the time. There were three private pupils of mine. Two did not go up. Whether the third did or not, I do not know.

Q. You gave them lessons? A. Yes, five or six in Algebra, Philosophy; and I think Arithmetic.

Q. And Arithmetic was one of the subjects for which you were preparing papers? A. Yes.

Q. Will you explain what is the meaning of the postscript to the letter of the 8th March, 1873: "Come up for your M.A. in May; write on mathematics?" A. I think Mr. McLellan, either by word of mouth or by letter, advised me to get my M.A., as it would be better for me as an applicant for a position in one of the new Normal Schools. There was a new rule as to the method of obtaining a master's degree in the Statutes of the University at that time. I had not been reviewing any of my higher subjects, and I was in great doubt how I should proceed, in what way I could succeed in obtaining it, and I asked Dr. McLellan what would be the best subject to write on, and he advised me to write on mathematics.

Q. Who was examiner in mathematics that year? A. Dr. McLellan and Mr. Fitzgerald. I did not go up for my M.A.

Q. In the letter of the 14th March, he again says, "Thanks for the problems;"—so you had sent more between the 8th and 14th of March? A. Yes, I expect I had.

Q. And he again promises you a place of $1,000 a year? A. He does not promise it. He says, "I think that ere long we shall have a place worth a thousand dollars a year for you."

Q. How many problems altogether, and riders and stiff questions and limber ones did you prepare for Mr. McLellan? A. Limit your question.

Q. How many in Arithmetic? A. I think two. I sent him two—one was from an old University paper.

Q. How many riders? A. I really cannot say.

Q. How many Trignometry papers? A. I sent him a Trigonometry paper. do not know whether it was used or not.

Q. Papers in Euclid? A. No, I did not.

Q. In Algebra? A. Yes.

Q. Any in Hydrostatics? A. No.

Q. Optics? A. No.

Q. Statics? A. No.

Q. Dynamics? A. No.

Q. Look at that paper in Arithmetic, 15th December, 1873. There are two questions marked. Read them. A. Question 3 is:—"Water expends 10 per cent. in freezing; find the weight of water in a solid piece of ice whose dimensions are 12ft., 8ft., $5\frac{1}{2}$ft., (cubic foot of water weighs 1,000 ounces)." Question 4 is:—"Show that the sum of $\surd 0{\cdot}79012345679$ and $\surd 0{\cdot}\dot{0}12345679$ is unity."

Q. Do you know who prepared those questions? A. I sent those to Dr. McLellan—questions 3 and 4.

Q. They are just as you sent them to Dr. McLellan? A. I cannot exactly say whether they are or not. I did not keep copies of the questions I sent to him, and would not state.

Q. Those are the questions you prepared? A. In substance, those are the questions.

(Examination Papers of December, 1873, put in and marked Exhibit "L.")

By Dr. McLellan.

Q. Mr. Davin has dwelt on the point that these promises of assistance were made by way of bribe? A. I never accepted them as such, and never thought they were such. It never entered my head you intended to bribe me at all.

Q. Had I not made promises of equal importance to you before? A. You had, from the time of your first visit to my school.

Q. Can you put in a letter to show that in 1872, long before this, I had made similar promises? A. Yes.

(Letter of 29th June, 1872, put in and marked Exhibit "M.")

Q. Read that letter? A.—

"YORKVILLE, 29th June, 1872.

"DEAR SIR,—Just got home. If I hear of anything I shall with pleasure do what I can for you.

"Trustees had better make effort to keep you—it will pay them in the end, as the school will rank higher and get more money than if they employ an inferior man.

"J. A. MCLELLAN.

"In haste.

"P.S.—Vacancies in High Schools will not be many this midsummer. But hope for the best.

"J. A. MCLELLAN.

"J. R. Teefy, B.A."

(Letter of 7th December, 1872, put in, and marked Exhibit "N.")

Q. Read that letter? A.—

"Private.

"YORKVILLE, Dec. 7, 1872.

"DEAR SIR,—I see you are advertising for an English and Mathematical master for the London High School. I take the liberty of stating to you that Mr. J. R. Teefy, B.A., —who will perhaps make application for the post—is an excellent mathematical and English scholar, and a superior teacher. He obtained a mathematical medal in the University of Toronto. The mathematical course embraces, as you are aware, not merely a popular knowledge of natural philosophy, astronomy, &c., but that complete knowledge of these subjects which can be acquired only by the application of the higher analysis. He is also a *first-rate classic*, having won classical honours for three years in University College, and taken the prize for Greek Iambics in third year. He is a capital teacher and disciplinarian. No school in Western Ontario has made greater advancement during current half year than Mr. Teefy's (Beamsville). I have no hesitation in recommending him for the position soon to be vacant in the London School.

"I beg to acknowledge the receipt of your note anent the entrance examination. If you think it advisable, you can of course give the substance of this communication to the London H. S. Board."

"Very truly yours,

"J. A. MCLELLAN.

"J. B. Boyle, Esq., &c., &c."

That was written to Mr. Boyle, of London. It was sent to me by the Secretary of the Board at London when my testimonials were sent back to me.

Q. Was I asking you for any problems or anything at the time that letter was written? A. No.

Q. Had I not been equally interested in your progress long before this University matter came up at all? A. From your first visit to my school, at Port Rowan, in 1871, you showed yourself very friendly.

Q. Did I not take up your cause very warmly because I thought you were unjustly treated, because of certain prejudices existing against you? A. I thought so at the time. I could not assign any other reason for your friendliness.

Q. I stated in a letter to the *Mail* that the offer of assistance, in the first place, came from you. Perhaps you will remember when Mr. Christie came down with me, and I was there—? A. I remember something of it.

Q. That I stated I was very hard worked. Did you offer the questions in Mr. Christie's presence, and say you could do it, as you were in a small school where there was not much to be done, and you would be glad to employ your evenings? A. You did not ask me directly, but it was almost a simultaneous offer on my part.

Q. That was in 1872? A. In the fall of 1872, I think.

Q. Did you furnish any problems for me, except for the first year for the University work, Algebra and Trigonometry? A. One paper on Conics, I think.

Q. The paper on Algebra was modified, was it not? Did you note it afterwards? A. I did not notice it afterwards at all. I took a glance in the University Library at the papers, but I did not pay any attention to it.

Q. The paper in Trigonometry? A. I believe the paper in Trigonometry was not used.

Q. Had you any students going up for that examination? A. None at all.

Q. Supposing you had had students, would you have made an offer to prepare questions? A. No, I should have been much more delicate about doing it.

Q. In regard to the Teachers' Examination, these two questions were sent in March? A. Early in 1873.

Q. At what examination to be used? A. I expected at the July examination.

Q. Were they used in July? A. No.

Q Had you any candidate going up in July? A. The only candidate I am not certain of, was one of the three I spoke of.

Q. Do you know what examination he went up to? A. It was a Miss DeWitt. She went up afterwards—a year or two, I believe.

Q. The questions being used later than the July examinations, could not have been of any use to you? A. I did not pay any attention to them after July, and did not expect they would appear.

Q. You had no students going up for the University Examination? A. No. The first students I had a hand in preparing, went up in December, 1873. These papers were set in June, 1873.

Q. You had no students going up for the Teachers' Examination in July? A. No.

Q. No questions you sent me appeared on that paper? A. No.

Q. You think it is possible one of the students came up to the following examination, a year after the papers were sent? A. I did not keep track. I know the other two never went up.

Q. If she had gone up,—did you give her any information about the questions? A. No.

Q. Did you give any one interested in any of the examinations that you gave me some questions for, any information? A. No; No information at all.

Q. Will you tell me how the substance of that letter of 1874 got into the *Mail* in the first place? A. I mentioned to Mr. Seath that I had a letter urging me very strongly to vote for Dr. Wilson. He asked for permission to see it. I gave it to him. He asked for permission to use it. I gave it, but told him he could not publish the letter. He committed it to memory while he had it in his hands, and in a few days it appeared in the columns of the *Mail*.

Q. These letters that have appeared here as evidence, did you entrust them to Mr. Dickson's custody? A. I did.

Q. Did you attach any condition to the custody, or what purpose had you in view? A. I do not remember attaching any condition at all. These letters I left with him specially. I was leaving the profession, and I did not expect at the time or since that he would use them. In fact, I gave him no authority to use them, as I wrote to Mr. Dickson anent the affair, when the subject came up in the *Mail*, and he sent me back the following letter:—

[Letter of Sept. 24th, 1877, put in and marked Exhibit "O."]

"Collegiate Institute,
"Hamilton, Sept. 24th, 1877.

"My Dear John R. T.,—I have just received your letter of the 20th inst. It came on Saturday, I see, but not going to the box before this morning, it has just come to hand.

In regard to the attack on Dr. McLellan, you are incorrect in supposing that I have had a hand in it. I didn't begin the attack on him; it began during my vacation, and

had progressed for upwards of three weeks before I knew anything of it. I haven't written a line of the articles that have appeared against McL. I didn't give up the letters to the *Mail* for publication, nor for any other purpose whatever, nor do I know at present who gave them up. When I go home at noon, I shall collect all letters and papers of yours that are still here, and send them to you as you direct.

"Educational affairs were in a bad enough state when you were teaching, but they are infinitely worse now; if a tithe of the charges against McL. can be substantiated, it will make out a case that no man with the slightest sense of moral rectitude would for a moment defend. We want 'clean' men to direct the educational affairs of the country, and I am forced to the conviction that McL. is anything but a man of high honour and uprightness.

"With kindest regards to Armand,
"I remain, yours
"Very sincerely,
"GEO. DICKSON.

"P.S.—I see by this morning's paper that a Commission with power to take evidence under oath, is appointed. Judge Patterson is to take the evidence. Witnesses in Canada will be compelled to attend.

"G. D."

Q. You had left other letters then in his custody? A. I had left a carpet bag of them; I left all my old letters there.

Q. You never gave him permission to use these letters in this way? A. No.

Q. You did not suppose he was going to use them in this way? A. No, I had too much confidence in him to suppose he was going to. I had had enough of that work before.

Q. Do you know to whom he gave the letters? A. I do not. I wrote to him a second time after receiving that reply.

[Letter of October 2nd, 1877, put in and marked Exhibit "P."]

The letter is as follows:—

"ASSUMPTION COLLEGE, SANDWICH, October 2nd, 1877.

"MY DEAR GEORGE,—The carpet bag containing letters of mine reached me last night. Much obliged. But none of the letters referred to by the *Mail* are there. Those letters I took from the rest, and left with you in the vacation of 1874—in the heat of the election contest between Hunter and Wilson. They were left simply in your care. Where are they now? Be kind enough to send them to me immediately. You see I am a witness in the investigation, and my personal honour is seriously at stake. Preparing for the holy priesthood, it would never do for any public stain to attach to my name. You say you did not give those letters to the *Mail*; did you give them to any person? If not, you must have them yet—please send them. If you did so, you had no permission from me to do so, and I must know the persons name. You get them from him for me.

"Yours sincerely,
"JOHN R. TEEFY."

He did not answer that letter.

Q. The letters were not his property, were they? A. They were not his property. They were not given up to him, but were left in his custody.

Q. In fact the letters were purloined by some one? A. Yes; I deem the letters purloined.

Q. He did not give you any information by whom they were stolen? A. I did not get any answer to that second letter.

Q. Was it your impression that my advising you to write in Mathematics meant that you would have no trouble in getting through? A. No. I thought you advised me to write on Mathematics because you knew it was my honour subject.

Q. I knew you were a mathematical medallist, did I not? A. Yes.

Q. Had ever anybody been rejected for his M.A. degree? A. I do not know. I cannot say. However, I did not go up.

Q. You ran no risk, and you did not suppose I was offering any favour at all? A. No, I did not, or I would have goue up.

Q. Did you write for your M.A. that time? A. No, I did not.

Q. That December Examination, 1873—what examination is it? Is it a Normal School Examination? A. No, second-class Provincial certificates.

Q. What were the miserable prejudices I referred to in one of the letters which have been quoted? A. I understood them to refer to my religion.

Q. As a matter of fact, you had been rejected in several places mainly on account of that—you had reason to believe that? A. I had reason to believe that I was.

Q. Is it your honest conviction that on that account I was more warmly than usual interested in you? A. I could not assign any other reason, unless it was the long continued acquaintance with me from boyhood up.

By Mr. Davin.

Q. You said, in reply to Mr. Kirkland, that these letters were purloined? A. I said I deemed them to be purloined.

Q. You do not know that they were purloined? A. I do not; but at present I deem them purloined.

James Campbell, sworn:—

By Mr. Davin.

Q. You are a book publisher? A. Yes.

Q. You have had a good deal of experience in connection with the Department of Education. A. In a certain way.

Q. Do you remember when the change in the policy of the Department in regard to copyrights took place? A. No, I do not. I know when it was inaugurated, but I do not know when it was changed.

Q. When was it inaugurated? A. I could not give you the year. I should have to refer to letters. It must have been seven, eight or more years ago. I could not say offhand.

Q. We have the evidence of Mr. Crooks that, under the Act of 1874, liberty was given for the first time to compete. Did not some change take place in the policy of the Department about a year ago? A. That which you referred to just now was not on the copyright. It was a totally different matter. You are taking two matters together which are quite distinct.

Q. Explain them? A. I only want to know what is required of me. I have nothing to keep back.

Q. We want what you know of the effect on the book trade, so far as school-books are concerned by the changes made in 1874. You are aware that the Department used to retain the copyright of the books? A. I know that the copyright was retained at first with the readers. Afterwards it was found to be a convenient arrangement, and the copyright was required of succeeding text-books also. That as far as I know, was not changed until it was found, on the representation of the booksellers, to be very inconvenient, and it was afterwards abandoned, so far as I know.

Q. What has been the effect of the change on the price of books? A. I can speak from hearsay. I could not quote two books, and say "such a book used to cost 50c.—now it costs $1." But that is the impression on my mind. As far as I know there are certain books introduced on a certain subject, for which the public have to pay a higher price than before I take back 50c. and $1. I meant that comparatively;—there are certain books charged higher than similar books were before.

Q. There is Kirkland's Arithmetic? A. I should have to look over a catalogue to state the difference between this and any other existing book.

Q. Did you have a conversation with Mr. Crooks about the authorization of text-

books? A. I have had several. I have had no communications whatever except through the Minister.

Q. Did you make any representation to him as to the advantages of any other firm in this city over your firm and your brother publishers, in the matter of authorization of text-books? A. Yes, I did.

Q. What firm did you say had the advantage? A. Adam Miller and Company.

Q. Did you mention any fact to him as to the authorization of books? A. I represented to him the advantages they possessed over other publishers.

Q. What are they? A. Previous knowledge of what books were to be authorized.

By Mr. Edgar.

Q. Are you saying what you stated to the Minister, or are you swearing to a particular fact? A. I am saying in effect what I represented to him.

Q. Are you aware that that is the case, that one firm has the advantage in regard to the authorization of books? A. My partner told me that Messrs. Miller were preparing two books that were to be authorized. We had no idea of such a thing, we had not heard of it, and we made application to know if it was the case. We found that no authorization had been given whatever, but that from some source or other, Messrs. Miller had acquired the knowledge, and were preparing the books.

By Mr. Davin.—

Q. Do you know the names of the books? A. The books were Mason's Grammar and Swinton's Language Lesson's.

Q. Then, before those books were authorized, Adam Miller & Co. knew they were to be? A. That is what my partner told me. I am not so much in the details of the business as my partner.

Q. You are aware that Mason's English Grammar is authorized, are you not? A. Yes.

Q. What did Mr. Crooks say when you represented this to him? A. I cannot quote his words. He seemed surprised. I do not remember what he said just now. He seemed surprised.

Q. Could you tell the learned Judge how it is that they came to know that these books would be authorized? What means had Adam Miller & Co. of knowing they would be authorized? Have you any knowledge? A. The knowledge was conveyed to them by an interested party.

Q. Do you know it from your own observation, or from facts that came under your notice? Do you know the name of the person who told you? If you know it, give it? A. It was Mr. Houston who told me that these were the books. We were talking on the mode by which the previous knowledge of what books would be authorized was obtained.

By Mr. Hughes,—

Q. Did the Department, under the former regulation, retain all the copyrights in their possession? A. No.

Q. Did the mode of their retaining copyrights meet with the approval of book publishers? A. It did not.

Q. You have stated that you know that books are dearer now than they were; can you state any book that is? A. No, I am not *au fait* with the details. I am not so much in the business as my partner and others.

Q. For the books you publish yourself, you hold the copyright of Morris's Grammar? A. Yes.

Q. What is the price of that? A. I cannot give it to you. I can give it to you to-morrow.

Q. Did you swear that you know that Adam Miller & Co. had previous knowledge? A. I received that intimation in the first place, from my son, my partner.

Q. You do not know it of your own knowledge? A. That was the first time it came to my knowledge. Mr. Houston was afterwards my informant.

Q. You speak of two books as being authorised, Mason's and Swinton's Grammars—these are the two you refer to? A. Yes.

Q. No others? A. No others.

Q. You are not prepared to give any information in regard to the price of the books? A. No.

Q. Can you state any comparison between the quality of the books now and two years ago? A. I could not say. I could say in a general way that they are certainly not improved.

Q. Could you tell me what was the retail price of any of the Readers, when you held the copyright alone, before Mr. Warwick had them? A. Just the same as now; no change has taken place.

Q. When Mr. Warwick and Mr. Lovell obtained permission to publish the series of Reading-books originally published by yourself, the price of these books was not lowered? A. No.

Q. Do you think the quality of the book was improved in its general character—binding, paper and so on? Do you think the other publishers used a better quality than you did? A. I think not, for we were under a ban very strongly. There were sundry gentlemen authorized to watch us very closely, and, under the old régime, the Council of Public Instruction came down upon us very severely in minute detail; but the stringency was lessened, and the books are not so good now as they were.

Q. Then the holding of the copyright of the series of Readers by the Department, did not improve the quality, or reduce the price of the books? A. I do not see that it had anything to do with it. There was not that care. The set of books we deposited with the Department can be seen—the wood engravings, binding, paper and printing can be seen, and the books of the present day are not to be compared to them.

By Mr. Gage.

Q. Did you apply for the copyright of Mason's Grammar? A. I cannot say whether I did or not.

Q. You are not aware that an application was made on behalf of your firm to the publishers in England? A. It may have been, but a great deal will depend on the date, whether it was six months after you applied or before.

Q. You would not have applied for the copyright if you had known that we had the copyright, and that the book was going to be authorized? A. I do not quite understand you.

Q. You would not have applied for the copyright of the book from the publishers in London, if you had known that we were publishing the book? A. We might.

Q. On what grounds? Do you think that two copyrights of the book could be held in Canada? A. It was a question whether it was a speculation on your part, or whether you had *bona fide* information that it would be authorized.

Q. Did you apply for the copyright or not? A. It is not at all unlikely. I wish to answer the last question. We might have supposed it a matter of speculation on your part, that you were not quite sure of it, and we might have supposed that we might have had as good a chance as yourselves.

Q. Did you apply for the copyright of Mason's Grammar or not? A. I cannot say whether we did or not.

Q If you did apply for the copyright, would it not look as if you had previous knowledge of the authorization of that text-book, or would it not seem as if you knew that it was going to be authorized? A. Supposing that we had the idea that the book was to be authorized, because we had heard that Messrs. Miller & Co. had the book nearly ready for publication, and learned, after all, that it was a speculation on their part and they had not really the copyright, it is quite possible we might have applied for it.

Q. You know there are serious penalties on a publisher who publishes a book copyrighted in England without having secured the copyright—you know that Messrs. Miller & Co. dare not publish it without the copyright? A. They dare not sell it. There is nothing to

hinder them from printing it and keeping it ready for the Minister's authorization. A good deal would depend on the character of the information and the hints you received in regard to that.

Q. Did you receive any information to warrant you to apply for the copyright of this book? A I do not know.

Q. You do not know whether you did or not? A. I do not know.

Q. Did you apply for the plates of Mason's Grammar? A. I had a good deal of conversation with my partner with regard to these books, and we had a sort of idea, because Messrs. Miller & Co. had these books in a state of preparation, that the probability was that they had got within the lines and had got information which was denied to us; and the question may have been put in general conversations with my partner—Have they really got the copyright, or is it merely a question of speculation? and we might have applied for the copyright.

Q. Did you apply for the copyright or plates of Mason's Grammar, knowing that Miller & Co. were going to publish that book in Canada, and you having heard that the book was likely to be authorized? A. We only knew that the book was likely to be authorized from the fact that Messrs. Miller were getting it out.

Q. How did you know that Messrs. Miller were bringing it out? A. We knew that grammars were to be brought out, and we set about to collect all the grammars we could here; we looked up all the grammars of good repute here and in the States, and we sent round to see if we could get Mason's and Swinton's grammars. Application was made to Messrs. Miller by one of our collectors, and they said they had not got it, but their own edition would be out in a short time.

Q. You did not know that Miller & Co. had advertised a copyright of Mason's Grammar in the papers a month or more before? A. I had not noticed it, and I do not think it was We knew nothing about it, and we were on the *qui vive* at the same time to have the grammars that were eligible, so that, when the Minister should pronounce, we should go in for them.

Q. You think it would not be possible for Miller & Co. to be on the *qui vive* as well as Campbell & Son, and collect all the books they could on the subject? Do you not think it possible for them to exercise the like precaution? A. I think it is something likely, but it is a totally different thing to publish the book. That is carrying the thing a little too far.

Q You think Adam Miller & Co. undertook too much risk in issuing a text-book without previous information? A. It is not a habit of my firm to do that sort of thing. I am not aware how you do that sort of thing.

Q. Do you know anything of a memorandum submitted to the *Mail* with reference to the publication of Mason's Grammar? A. Not a line. All my communications on text-books were with the Minister.

Q. There was a memorandum in the *Mail* stating that the copyright was announced six months before it was authorized? A. I have no knowledge of that.

Q. There was no correspondence with your firm? A. I remember that memorandum. I asked my son—Have we ever given any information whatever to any newspaper about this book? He said, no, nor have we been solicited.

Q. Then you do not know whether you applied for the copyright of Mason's Grammar four or five months before the official list was issued? A. I cannot say.

Q. Will you state what books recently published by Miller & Co., and authorized by the Minister of Education, are not improved? A. The best way would be to take the books and compare them.

Q. You said you thought the books were not improved recently? A. I say there are books which have come from your establishment that I do not consider were up to the mark of the style of books previously.

Q. Will you specify them? A. Take Colenso's Algebra and Potts's Euclid—take these two books of ours; they are thoroughly good text-books—good paper, thoroughly well printed and well bound.

Q. Mr. Dickson, teacher of the Hamilton Collegiate Institute, states that the books have been improved, and hundreds of teachers say the same? A. You would not ask me to go to a teacher to give an opinion as to the quality of printing and paper. They have

an opportunity of testing as to the binding, but I do not think they can give an opinion as to the printing and the quality of paper.

Q. Look at the Elementary Grammar by Dr. Davies, and Swinton's Language Lessons ;—do you think the grammar most recently published is inferior in its binding and get up to the other? A. No, Swinton's is a very handsomely got up book.

Q. Swinton's is one in which the copyright is held by the publishers, Miller & Co. ? A. I believe so.

Q. The other is one, the copyright of which is surrendered to the Department ? A. I believe so.

Q. You say the one in which the copyright is surrendered to the Department is inferior ? A. One book cannot decide the question. They are both very well got-up books.

Q. Which is the better of the two ? A. Swinton's Language Lessons seems to have the newer type. The other is very good ; I find no fault with it.

Q. Will you state that Swinton's Language Lessons is not a better book in its mechanical execution than the older grammar ? A. I think it is much better.

Q. Look at Colenso's Algebra, and Hamblin Smith's ;—you referred to Colenso's Algebra as being superior ? A. I referred to the book published by ourselves, not the English one at all.

Q. Is that book in your hand one of those published by you ? A. No. This bears Longmans' imprint.

Q. Then you say your book was better than Longmans' ? A. That has nothing to do with it. I say that those two books published by us were well got up, and that books were got up subsequently which were not so good.

Q. There are two Algebras—one recently authorized by the Department—Hamblin Smith's ? A. This is a much inferior book to Swinton's.

Q. Compare the two books—Colenso's and Hamblin Smith's ? A. Hamblin Smith's is a fairly got up book. It is inferior to Swinton's but the English book is better.

Q. Is Hamblin Smith's Algebra equally well got up with the book you published, Colenso's Algebra ? A. You bring forward the best and most recent of your books and ask my opinion on this and Swinton's. I say Swinton's is an excellent book. This is a very good one ; this is no great shakes ; and others you have published are no good whatever.

Q. Is the edition we published of Hamblin Smith's Algebra equal to the Algebra you published ? A. I think it is very good indeed. I dare say it is equal.

Q. Is it better ? A. I do not think so. It would need a little examination.

Q. You are publisher of one of the elementary grammars—Morris's Grammar Primer. Is not the copyright of the science primers held by your firm ? A. Yes.

Q. They have been copyrighted recently ? A. Yes.

Q. The copyright has not been surrendered to the Department ? A. No.

Q. Have the books deteriorated in consequence ? A. I could not say without comparing them.

Q. Do you think the books you have recently published have not improved ? A. I cannot tell without comparing them.

Q. They were not, you state, improved under the recent regulations ? A. I say many of them have not. I mean that, from the time we commenced to publish our school-books, the books, generally speaking, have deteriorated, and have not been got up in the style ours were originally.

Q. Is it your impression that the books are not improved in the general get-up ? A. Some of them are very good, and others have deteriorated. What recent regulations do you mean ?

Q. I mean within this last year or so ? A. I go back much further than last year, I assure you.

Q. I mean when it was a rule of the Department that the copyright should be surrendered to the Department. You have made the statement that the books have not since improved ? A. I did not refer to within a year, but to the style in which we got up our books, and to the fact that since that they have deteriorated.

Q. You have stated that you are not in favour of having the copyright surrendered to the Department ? A. I am not.

Q. Would you surrender it to have the book authorized ? A. We have resisted it.

By Mr. Houston.

Q. You made a statement to the effect that I informed you that I knew the means by which Adam Miller & Co. obtained early information of the authorisation of Mason's Grammar? A. Yes.

Q. I stated that I knew the means by which they obtained their information? A. Yes.

Q. Where did the conversation take place of which that formed a part? A. In Willing & Williamson's store.

Q. Will you relate the substance of the conversation? A. I am very unwilling to go into all this kind of thing.

Q. This conversation was held in the presence of Mr. Willing, and I give you full liberty to repeat everything I said. A. You stated at that time that you had been consulted as to what books would be most proper to be introduced as Grammars, and that you gave such information.

Q. By "information" do you mean an opinion? A. I cannot tell.

Q. Are you using the word as synonymous with "opinion?" A. I was in Willing & Williamson's shop about the anomalous thing of these two books being known previous to their being sanctioned by the Minister. You were there, and explained how it was, that it arose, as I understood it, from the opinion you had given as to what books ought to be used, and that that information was conveyed to Messrs. Miller.

Q. Do you mean the information that I gave to Messrs. Miller, or some information I was aware, had been given to Messrs. Miller? A. No; that you personally gave it.

Q. Did you gather from the conversation of what nature that information was—the precise nature? A. I cannot tell what the precise nature of it was as you gave it to them. The intimation you gave to me was, that you conveyed that knowledge to them, whether you gave it as an opinion or not.

Q. Knowledge and opinion are two different things. When you say I gave information, I want to know whether it was information that it would be, or my opinion that it was likely to be authorized? A. You said nothing to me to intimate your certainty of the book being authorized.

Q. Did I say anything to intimate my knowledge that Adam Miller & Co. knew it would be authorized, of a certainty? A. I do not think you said anything to lead me to think you knew for a certainty that it would be authorized.

Q. Did I say more than that it would be a good book to authorize? A. I think so.

Q. How much further did I go? A. It is very unpleasant to me to be bringing forward what appears to be private conversations. It is contrary to my habit.

Q. I do not regard such a conversation in the presence of Mr. Willing as private at all? A. Yes, but people will speak of things privately. I never gave any information to the *Mail*, *Globe*, or any one about these conversations, and it is for the first time that it is given now. I considered them confidential.

Q. In your leading examination, you gave the Commissioner to understand that I gave certain information, which appears to have evaporated into something like an opinion. I want to know the distance to which I went in the expression of an opinion, and if it could be properly called giving information that the book would be authorized? A. You said nothing to lead me to suppose that you knew certainly that the book would be authorized, and gave information to that effect. I am willing to go into detail. I would not have you believe that I am in any way imperfect in my knowledge, or have endeavoured to say anything I do not believe in my mind to be correct. I wish to answer the questions without conveying all the knowledge that might be given.

By the Commissioner.

Q. Do I understand that what you convey now is that the effect of this conversation in Willing & Williamson's store was that Mr. Houston intimated that he had intimated an opinion to Miller & Co. that the book would be authorized? A. This is not the whole matter.

By Mr. Houston.

Q. It affects my personal character, and I would like very much if the witness would say what his impression was? A. My impression decidedly was that you were in possession, or appeared to me to be in possession, of the fact that these books would be authorized, and that that information which you had was well founded, and that, in all probability the result would be—not of a certainty—the authorization of them, and the sale of them by Messrs. Miller.

Q. Did I lead you to suppose that the information I got was simply an opinion of my own, based on the merits of the book, which I had given to Adam Miller & Co., or was derived from some other party who would know? A. The question of the merits of the book originated with yourself.

Q. Did I tell you it was an opinion I had given them? A. Yes, there was more than that.

Q. What more? A. There was this, that had I taken the hint you gave us, we might have been in the position Messrs. Miller were in.

Q. That is too vague? A. You called at my warehouse on one occasion. I was very glad to see you as I always am to see any gentlemen of the Press. You spoke of a number of subjects in regard to school-books and text-books, the usual courtesies passed, and things were very pleasant, and then you went away. My partner was with me. We thought no more about it. When it came out afterwards that Messrs. Miller were in early possession of the knowledge of the books to be authorized, we set ourselves to work to find out how it was. We could not tell. I was in conversation with Mr. Willing on the subject, when you came into the shop, and you voluntarily stated that you had proposed those two books, and that if we had taken the hint you gave us that day, we might have been in the position of the Messrs. Miller. We were obtuse enough not to take the hint, because we had never been accustomed to it, and never thought that, under the Minister, such a thing was possible. You did not convey to me at any time the idea that certainly the books would be authorized in consequence of what you had done or said.

Q. I did not give you to understand that I got information from members of the Central Committee or any one else that the books would be authorized, to speak plainly? A. Not to speak plainly, but a man would be very obtuse if he did not understand it.

By Mr. Edgar.

Q. Then the firm of which you were a member had earlier information than Adam Miller and Company had of this book? A. Yes; but we did not know; we did not recognize the bone placed before us.

By Mr. Houston.

Q. You know an impression is currently reported that I was the channel? A. I believe that is so. I take it from what you stated, that the information you gave to us was given to Adam Miller and Company, and they were sharper in their day than I was and took it up.

By Mr. Hughes.

Q. The information came from the same source, and you think it was the same information. Did Mr. Houston, when he gave you this prior information, insinuate that he had information from any member of the Central Committee, that these books would be authorized? A. No; if he had spoken in such language as that, we would have understood what he meant; but he did not, and that is why we did not.

By Mr. Buchan.

Q. When did these conversations take place? A. This spring, I think. I left for England the end of April, and it must have been previous to that.

Q. Could you fix the date? A. I could not, certainly.

By Mr. Hughes.

Q. If it was this year, and it comes out in future that Adam Miller & Co. had applied to the publisher or author of the book in the early part of 1876 for the copyright, then would you still be of opinion that it was from Mr. Houston they got the information? A. I rely on what Mr. Houston said. He is my source of information. I have nothing else. As to drawing inferences, or anything of that kind, I do not consider that this is a place to do it.

By Mr. Glashan.

Q. What did Mr. Houston say? A. He said that, if we had taken the hint that day when he called upon us, we would have been in the position of Adam Miller.

Q. Was that hint a certain statement in praise of the book? A. I do not know, because it was conveyed in such a way that we did not take it at the time as intimating anything. It was Mr. Houston's subsequent admission that led us to remember that there was a conversation on the subject of text-books, and the probability that that subject came up. It was his own admission, not ours. We did not see that he was driving at anything in particular.

By Mr. Edgar.

Q. Do you recollect what he said about Mason's Grammar? A. I do not.

John R. Teefy, recalled :—

By Dr. McLellan.

Q. You mentioned that you had no candidates coming up to that examination on which those two questions in Arithmetic appeared. Did you state that there were three persons to whom you had given some kind of teaching? A. Yes.

Q. Two of these you were certain had not come up? A. Yes.

Q. And the one you were not certain about was—? A. Miss DeWitt.

Q. Mr. Belford stated in his evidence yesterday, that the person who furnished him these private letters, sent him a letter with them, stating that he had your authority for using them. Is that false? A. It is false.

Q. Our accusers have endeavoured to make it appear that the favourable reports which I refer to in a certain letter written to you, bear this construction, that I intended to report favourably of your school for the future, to increase your chances for the Normal School appointment. Is that correct, or had the favourable reports been already sent in to the Department? A. I always understood you had sent them before that, in fact, from your first visit to my school in 1871.

Q. Something was said about the conditions on which you left those letters in charge of Mr. Dickson. You meant, I suppose, that they were left as property generally is left, in custody of a person in whom you have confidence? A. Yes.

Q. You did not mean that you surrendered them as his property. A. Not at all.

The inquiry was then adjourned until 11 o'clock to-morrow.

Thursday, November 15th, 1877.

The inquiry opened at 11 o'clock.

Isaac J. Birchard, affirmed :—

By Mr. Kirkland.

Q. Did you attend at the Normal School during the whole of the session ending 1871? A. I did.

Q. How long have you been a teacher? A. I have been a teacher nearly ten years.

Q. Do you hold a second-class certificate of the highest grade? A. I do.

Q. You are also an undergraduate of the University of Toronto, and undergraduate in honours? A. I am.

Q. And gold-medallist of your year? A. Yes.

Q. Do you recollect anything of a series of questions in Chemistry and Physics being given out to the students during the session of 1874? A. I do remember questions being given frequently.

Q. Do you remember a certain series of questions being given? A. I do.

Q. For what purpose did you understand those questions to be given? A. I understood that those questions were given to us as a guide in our reading, that we might read for definite information, and not lose our time in reading what was not to the point.

Q Do you recollect anything peculiar in the manner of giving the questions at any time? A. I do not.

Q. The questions were given out in the ordinary manner? A. They were.

Q. Mr. Brown states in his evidence that there was something peculiar in the manner in which I gave out those questions, inasmuch as they were told to be sure and turn up the answers. We were never told to turn up the answers. We received the questions. We were supposed to read up the subjects—the points that those questions bore upon—but as for such an expression as turning up the answers, I don't remember ever hearing such an expression at the Normal.

Q. You don't recollect my stating that you were to turn up answers to any questions particularly? A. I have no recollection of your ever making such a statement.

Q. Then you think Brown is mistaken in that? A. I certainly think he is mistaken in regard to that expression of turning up the answers.

Q. Brown further states: "Mr. Kirkland said we need not further study those questions than to get up the answers." Do you recollect anything of that? A. I do not recollect such an expression as that. I might say I took very careful notice of every expression that fell from your lips during school time, particularly during the latter part of the session, and remember no such expression as that.

Q. Do you think I could have said that and you not have noticed it? A. I don't think so.

Q. Brown further states: "Before I wrote anything I was struck with the similarity between the questions on the Examination Papers and those on the papers given by Mr. Kirkland," and that the students smiled. Do you recollect anything of that? You wrote on the same papers? A. I did.

Q. Did anything strike you when you received that paper? A. Nothing unusual. I received the paper; I did not smile; I sat down to answer it to the best of my ability.

Q. Did you see anybody smile? A. I did not.

Q. Where did you sit in the room? A. I sat on the front row of seats, near the left hand side.

Q. Where did Brown sit? A. I don't remember positively so as to make a really positive statement where he sat, but I think he sat a little to my left and a little behind me.

Q. Brown and you boarded in the same house? A. We did; we were room mates for a time.

Q. In college language you were chums? A. Yes.

Q. You freely talked over Normal School affairs together? A. Yes.

Q Very freely? A. Yes.

Q. After the Examination did Brown make any remarks to you about the similarity of the Examination Papers, either to my lectures or to the questions given out by me? A. Not to my recollection. I don't remember his making any.

Q. Would you forget it? A. I don't think so. I remember all the little incidents of that Examination very distinctly. I don't remember anything of that kind.

Q. From your knowledge of students generally, he would have done so if he had noticed any? A. I think so.

Q. Students freely say between one another what they think of examinations? A. Decidedly.

Q. What other students boarded in the same house? A. Mr. Barnes, Mr. Hodson, Mr. Jameson, Mr. Brown. We were together all the session. There were some others who were with us part of the session.

Q. You freely discussed the examination amongst yourselves in the waiting-room, and also in your own boarding-house? A. Yes.

Q. Did the similarity spoken of by Brown strike any others so as to lead them to speak of it when you were discussing the merits and demerits of the Examination Papers? A. No, not to my recollection.

Q. Then you swear that the question of similarity between the Examination Papers and my lectures, notes or questions, was never spoken of amongst the students? A. I would not like to say that. We never said anything about whether the papers were similar to what you gave or not; but I do state most distinctly, that nothing was said between any students at our boarding-house, to my recollection, of there being any improper similarity.

Q. Or undue similarity? A. Or undue similarity.

Q. You paid special attention to chemistry that session—did you not? A. I did. That was why I attended the Normal.

Q. Were you my Laboratory Assistant? A. I was.

Q. And paid close attention to the lectures? A. I did.

Q. Was any more attention paid to those points which appeared afterwards in the Examination Papers than the other important points in the course of chemistry and physics? A. No, in my opinion, or to the best of my knowledge there was no more attention paid to them.

Q. If I had had any previous knowledge of the questions in the Examination Papers, would I have been as likely to have indicated them to you as to any of the other students of the session? A. I think likely.

Q. Why? A. Because I was probably with you more than any one student, being in the laboratory every evening and taking private lessons from you also.

Q. On what subject? A. In classics, and occasionally getting notes on other subjects at odd times.

Q. You were with me more than any other student during that session? A. I was during the latter part of the session.

Q. Judging from the manner of the teaching, from the circumstances that occurred during the session, from your own experience as a teacher, do you think I have had any information of the questions that were asked at the final examination of 1874? A. I don't think so.

Q. That you positively swear? A. I swear I don't think so.

Q. In your opinion? A. To the best of my judgment, or, in my opinion, I don't think you had any information whatever. I saw no indications of it.

Q. I gave you some private lessons in classics previous to your matriculation in the University of Toronto. Was there any more similarity between my lessons in classics and the papers in the University than between my teaching in Chemistry and Physics and the papers afterwards set on those subjects? A. I should say there was as much similarity in one case as in the other.

Mr. Davin objected that the University papers must be produced if they were to be made the subject of examination.

The Commissioner upheld the objection.

Examination resumed:—

Q. Your opinion from all you knew during that session from the other students, and from your own experience and knowledge, is that you saw nothing that would indicate that I had any undue information? A. I saw nothing to indicate any such thing.

By Mr. Davin.

Q. What is your profession? A. Teacher.

Q. Where are you teaching? A. In Toronto.

Q. In what school? A. I am headmaster of the Louisa-street school.

Q. Who inspects that school? A. Mr. James Hughes.

Q. He is, I believe, one of the Central Committee? A. He is, I believe.

Q. When you were at the Normal School, you received private lessons from Mr. Kirkland? A. I did.

Q. In what subject? A. In classics.

Q. You say you were with him more than any other student? A. I was during the latter part of the session more than any other male student.

Q. More than any other female student? A. More than any other student male or female between nine in the morning and six o'clock in the evening.

Q. You were very intimate, then, with Mr. Kirkland? A. I was as intimate as a pupil should be with a teacher. I don't think any more so.

Q. You were his assistant in the laboratory? A. I was for a time.

Q. You say Mr. Kirkland never told you to look up the answers to any questions? A. To the best of my recollection, he never used the expression, "turn up answers."

Q. Did he tell you to look at the answers? A. I don't remember his using the word "answers" at all.

Q. What did he say? A. I cannot recollect his exact language.

Q. Did he tell you to study the answers? A. I don't think he used "answers," and no teacher who knew his business would use such an expression.

Q. What expression would he use? A. A teacher who knew his business would indicate towards the close of the season what subjects the pupil should study to pass a creditable examination.

Q. Would he put certain questions to them? A. The usual way—the way Mr. Kirkland teaches—was, after having lectured in a department of a subject, to give us a series of questions, and we read them up at home and very often gave answers.

Q. When he gave you this series of questions, what remarks would he make? A. He would say, "Here is a paper of questions." We would take it to the waiting-room and copy it.

Q. What did he tell you to do? A. He never told me.

Q. Did he tell the class to do anything? A. It was understood what they were to do.

Q. Did he tell the class to do anything in your hearing? A. I cannot at present recollect what he said at any time. There was generally nothing said about it.

Q. Did he give the questions always in solemn silence? A. His usual custom during the whole session was, after having lectured on a subject to give us a copy of questions, and we would take it into the waiting-room and take the questions down as far as we could.

Q. Did he make any remarks when he gave them to you? A. No special remarks.

Q. Any remarks? A. Likely he would say something sometimes.

Q. What? A. He would perhaps, as we passed his desk, hand out to the first student a copy of the questions.

Q. What would he say? A. He would say "Take this," or something of that kind.

Q. Would he say, "Take this and look up the answers to these questions"? A. I object to the word "answers."

Q. What do you call what is done in regard to questions? A. The style of questions he gave us, was questions of certain important points, and we would take them and read our text-books with the object of getting information on that point; but the idea of a question here and the answer over there in catechism style, I object to.

Q. I want to know what he did or said. Will you swear, or rather will you solemnly affirm, that he never told his class to look up the answers to the questions he gave? A. I solemnly affirm that he never used such an expression as "turning up answers."

Q. What did Mr. Kirkland say,—because you remember very distinctly in regard to other matters. What did he say when he gave out the questions? A. As they were given out fifty times or more during the session I cannot remember what he said each time.

Q. On any one occasion? A. I cannot remember his exact words on any one occasion.

Q. Do you remember what he said on any one occasion? A. I do not. I don't remember his exact words.

Q. I want the character of what he said—what he used to tell you when he gave those questions? A. The character of what he said, and the understanding was, that we were to take those questions and make ourselves masters of the principles which they embody.

Q How did you get to understand what Mr. Kirkland meant? A. From common sense.

Q. What did Mr. Kirkland say? A. I don't remember. I tell you what he meant. I don't remember his exact words.

Q. You say you have no recollection of Mr. Kirkland ever having made such a remark as that the answers to those questions should be turned up? A. I never heard him make use of such an expression as to turn up answers.

Q. How many were in your class? A. I could hardly remember; there was only a small number in the first division.

Q. Were there 12? A. I think so; I would probably say there were somewhere between twelve and twenty; I don't remember the exact number.

Q. Will you swear that he did not say to any one of the other eleven, to turn up answers to those questions? A. He did not tell them to turn up answers during lecture time; and I was present at all the lectures on that subject with one or two exceptions.

Q. You heard every syllable he uttered to the class during the lectures? A. I heard every one while I was in the room; I did not attend all, but I attended all with a few exceptions.

Q. While you were away he could have said so? A. I guess he could have done that.

Q. You say you took careful notes of every expression which fell from his lips? A. Mental notes; I did not take any written notes at all; I never take any written notes of a lecture; if I want notes I buy printed notes, and they are better than I can take down. I said notice, not notes.

Q. When you went into the examination-room you say you did not see the students put down their heads and smile? A. I might have seen somebody draw their faces and twist their mouths a little bit.

Q. You have been in a good many examination-rooms? A. I have.

Q. Is a student, when he gets into an examination-room, in a humorous state of mind? A. Sometimes.

Q. They may have turned their mouths a little? A. They may, particularly if I gave one of them a pinch.

Q. You say that at your boarding-house you talked freely over Normal School affairs? A. I did.

Q. Were you present at every conversation between Brown and his fellow-students? A. I don't think so.

Q. You say you would not like to say whether you never said anything as to whether those papers were similar or not? A. I said something like that.

Q. What did you say about the similarity of those papers? A. I said a little while ago that I don't remember anything specially being said about the similarity of the papers. Students are full of talk.

Q. Tell me what you said? A. I said that we never said anything serious about there being any undue similarity between Mr. Kirkland's teaching and the paper—never said in earnest after we had the examination paper. I say that decidedly.

Q. Repeat the answer? A. I say that we never said anything seriously about there being any undue similarity between the examination paper after it was over and Mr. Kirkland's teaching.

Q. Did you say anything humorously? A. I don't remember anything.

Q. Did you say anything? A. Well, I cannot remember all the idle talk.

Q. Your memory is very good at other times. What did you say? A. I tell you most distinctly, that I don't remember saying anything, there may have been some idle laughing or joking about it, but I don't remember any.

Q. About the similarity between the two papers? A. Decidedly, but I say most distinctly I don't remember any.

Q. How is it that your memory is fresh and vigorous when you have anything to say in answer to Mr. Kirkland and yet fails you entirely when you have to say anything in answer to me? A. My memory is good in replying to Mr. Kirkland's questions because his questions are important, but the idle talk of students is not important.

Q. Your memory is strong for somethings and not for others? A. Yes.

Q. This occurred about two or three years ago. You don't remember whether the students said anything about the similarity of those papers or not? A. Idle talk of students I do not remember.

Q. Will you affirm that you do not remember anything said by the students? A. I affirm that I do not remember anything being said among the students after the examination was over about there being any undue similarity.

Q. Was there any similarity?—did they say anything about any similarity? A. Not to my recollection. There was a similarity, of course—Mr. Kirkland taught on Chemistry and the Examiner examined on Chemistry.

Q. But no undue similarity? A. No. Mr. Kirkland taught on Chemistry and the examination was on the same department.

Q. You have affirmed that no more attention was paid to the points in the Examination Papers than to any other part of the subject treated of during the session? A. To the best of my judgment.

Q. Will you tell my Lord that there was no more attention paid to the subjects which afterwards appeared in the Examination Papers than to the general run of the subject? A. In my opinion there was not.

Q. Three or four weeks before the Examination, were there not questions given out to you for the Chemistry Paper? A. There was a series of questions given out a short time before the Examination. I do not remember how long, some few weeks or something of that kind. We got questions every day on the subjects lectured on, and towards the end we got a lot, we got a host of questions.

Q. Look at Brown's book. Read out the first question: "What is the law of gaseous diffusion? What is the law of gaseous expansion by increase of temperature?" Did you get that question? A. I cannot remember whether I got that identical question or not.

Q. You did not take a mental note of that question, if it was given? A. I don't remember that question individually.

Q. Read the second question: A. "What is ozone; how is it obtained; what are its properties?"

Q. Did you get that question? A. We got it sometime during the same. I cannot say that we got it in the words, but we got the question on ozone.

Q. Did you take a mental note of it? A. I took a mental note of what ozone is and how to prepare it.

Q. Did you get that question three or four weeks before the Examination? A. I don't know when we got it. We got it during the session.

Q. Read the third question? A. "What are the usual impurities of spring water how are they detected, and how are they removed?"

Q. Did you get that question? A. We got something about impurities of water.

Q. Did you get that three or four weeks before the Examination? A. We had the impurities of water about at the beginning of the session.

Q. About three or four weeks before the Examination? A. Not to my knowledge. I know it was about at the beginning of the session.

Q. But not at the end? A. I don't know whether it was or not.

Q. Read question 4? A. "How is commercial nitric acid obtained; how would you detect the presence of a nitrate?"

Q. Did you get that? A. We got something about nitric acid and something about nitrates.

Q. At the beginning of the session or three or four weeks before the Examination? A. I don't remember. Of course, in the beginning, because it is one of the first things treated of.

Q. Did you take mental notes or not of that? A. I took notice of nitric acid.

Q. Read question 5? A. "How is ammonia obtained; give the derivation of the

name, and express the reaction by an equation. What are its properties? How would you detect the presence of ammonia?"

Q. Did you get that question? A. We were questioned on ammonia certainly.

Q. Three or four weeks before the examination? A. I don't know that.

Q. Was it at the beginning or the end of the session? A. It was during the session.

Q. Was it in the middle of the session? A. Everything is in the middle, between the two ends, I suppose.

Q. Have you any idea whether it was given at the middle, at the beginning, or the end? A. I have a little idea when it would come in.

Q. I want your evidence, not your reason. Tell us what you remember. When was it given? A. If you won't let me give my answer in my own words, I won't answer.

The Commissioner.—I think the question is a proper one.

Witness.—I cannot give the date. I cannot give the date because I cannot remember it.

By Mr. Davin.

Q. Will you swear that it was not given at the end of the session? A. I won't swear any such thing.

Q. Read the next question, No. 7? A. "How would you detect the presence of a carbonate? What takes place when carbonic acid is passed into lime-water to saturation?"

Q. Did you get that question? A. I cannot say whether we got it or not. We got something about carbonic acid during the session.

Q. Did you get it three or four weeks before the examination? A. I cannot say when we got it.

Q. At the beginning of the session? A. I will neither give a date for that, nor any other question of the kind.

Q. Read the next question? A. "How is H_2SO_4 manufactured? Explain the reaction by an equation. What are its properties and uses; and explain fully how you would detect its presence in any form in a solution?"

Q. Did you get that question? A. We got something about sulphuric acid, and will get it every session.

Q. Did you get that question just as it is there? A. I am sure I cannot say as to the exact words. I remember sulphuric acid; that is all I remember about it.

Q. You don't remember any question at all like that? A. We got a question about sulphuric acid, but I don't remember how any such questions were worded.

Q. Look at Question 9? A. Question 10 is,—"How much $H_2 S O_4$ could you obtain from a ton of iron pyrites?"

Q. Did you get that? A. I don't know whether we did or not.

Q. Look at Question 11,—"Describe Marsh's test," and so on? A. I don't know for certain whether he ever gave us Marsh's test; I remember reading it up myself.

Q. You don't know whether he ever asked you that question? A. I don't think he did; he did not ask me, to the best of my recollection.

Q. You have sworn that nothing could have been asked the class that you did not know? A. I did not say anything of the kind.

Q. Read Question 12? A. "Name and give the composition of the workable ores of tin, and the method of obtaining tin from its ores, and the principles involved?"

Q. Did you get that question? A. I don't know whether we got that question or not.

Q. Read the next? A. "State in general terms how phosphorus is prepared, in what two forms does it occur, and show that these two forms are virtually the same?"

Q. Did you get that question? A. I don't know whether we got those words or not; we got something about phosphorus.

Q. Read the next question? A. "If a vessel contained a mixture of N and $C O_2$, how would you proceed to measure the N, and how to weigh the quantity of $C O_2$? If you wanted to determine the volume of $C O_2$, how would you do it?"

Q. What does N and $C O_2$ signify? A. They represent nitrogen and carbonic acid.

Q. Did you get that question? A. I don't know whether we did or not.

Q. Read the next? A. Name the chief constituents of coal gas, and state which is useful, which harmless, and which injurious?"

Q. Did you get that question? A. We got questions about gas.

Q. Read the next question? A "State generally how iodine may be obtained, and how it may be detected in any compound?"

Q. Did you get that question? A. We got questions about iodine.

Q. Go on? A. "A quantity of coal gas is supposed to be mixed with common air; how could you tell whether this is the case or not?"

Q. Did you get that question? A. We got something about coal-gas.

Q. You won't swear you got that question? A. Not in those words; I don't remember the words of questions.

Q. Go on to the next? A. "Classify the common metals according to their equivalency."

Q. Did you get that question? A. I don't remember whether we got it in those words or not.

Q. Read the next question? A. "Give the formula for the most characteristic oxide and sulphate of potassium, iron, and copper."

Q. Did you get that question? A. I don't know whether we got it in those words or not.

Q. Turn to the next. A. "How is silver obtained and state the principles involved?"

Q. Did you get that question? A. I don't know whether we got it in those words or not.

Q. The next. A. "How is tin obtained. How would you test the presence of a compound of tin in any solution?"

Q. Did you get that question? A. We got something about tin during the session, and a good many other things.

Q. Did you get that question? A. We got something about tin.

Q. Did you get that question? A. We got something about tin.

Q. Did you get that question? Answer me, sir! A. I think I have answered.

Q. Did you get that question? A. Is it necessary for me to give any other answer.

The Commissioner.—You have not answered that question so far. You have not given any answer to it whatever at present.

Witness.—I don't know that we got it in those words.

Mr. Davin.—Did you get that question? A. I don't know that we got it in those words.

Q. If you did not get it literally, did you get it in almost the same words? A. We got something about tin, but I don't remember the words of questions; I remember principles

Q. Turn to the next question. A. "100 cubic centimetres of N H are completely decomposed by a series of electric sparks yielding 200 cubic centimetres of mixed H & N An excess of O is next added, when the volume of mixed gases is found to amount to 290 c. c. The mixture is now exploded, when 65 c. c. of gas remains. Calculate from the data the composition of N H_3?"

Q. Did you get that question? A. I don't know that we got it in those words.

Q. Did you get it in very nearly the same words? A. I do not remember the words of questions. I remember N H_3. I remember Mr. Kirkland's lectures upon that subject.

Q. You have sworn that certain questions were given; was that question given? A. I don't know whether the question was given in those words or not.

Q. Was it given in nearly the same words? A. I don't know. I don't know whether the words were anything like those. I could ask the question in a dozen ways.

Q. Will you swear that question was not given? A. I will not swear anything of the kind.

Q. Did you attend the Physics Classes? A. Most of them; I was passing some of them.

Q. Read question 6. A. "How would you cool a mixture without either ice or snow? Explain clearly the principle involved."

Q. Did you get that question? A. I don't know the words of any of the questions.

Q Will you swear you got or did not get that question? A. I will not. I remember he gave freezing questions.

Q. Did he give you that? A. I don't remember whether he did in those words or not.

Q. Look at question 7. A. "Compare the heat spectrum and the light spectrum."

Q. Did you get that question? A. I don't remember much about spectrums. I don't know whether he gave that question or not.

Q. You said Mr. Kirkland could not have said anything in class when you were present, without you hearing it? A. No, he could not.

Q. And you told my Lord you could not hear anything, without remembering? A. I did not.

Q. You swore that Mr. Brown was mistaken in making certain statements? A. I thought he was.

Q. How dare you, if you cannot remember, have an opinion on the subject? A. I say I think so.

Q. What is question 7? A. "Compare the heat spectrum and the light spectrum."

Q. Will you say you do not remember whether Mr. Kirkland gave that question, or not? A. I don't remember whether he gave that identical question or not.

Q. Read that question. A. "Describe Newton's telescope."

Q. Did you get that? A. We got some questions about telescopes.

Q. You cannot say whether you got that or not? A. I cannot say whether he did or did not give us Newton's. I dare say he did—it is likely.

Q. You don't remember? A. I don't remember whether he gave us Newton's or not.

Q. Who asked you to come here to-day? A. I received a summons from the Secretary of this investigation.

Q. From whom? A. I think Richardson was the name signed. It was a good while ago.

Q. When did you arrive in Toronto? A. I have been living here for two or three years.

Q. You are living in Toronto at present? A. I am.

Q. Has Mr. Kirkland spoken to you about this inquiry? A. Yes, we have spoken about this investigation.

Q. He has spoken to you about this investigation? A. We have talked about this investigation.

Q. Mr. Kirkland and you? A. I think likely I spoke first.

Q. Have you had any conversation with Mr. Kirkland about it? A. Yes.

Q. How many? A. I cannot tell.

Q. Had you six? A. Well, it depends on what is a conversation. If every sentence is a conversation, I think likely we have had six. If it means six different times or six appointed meetings, or anything of that kind, we have not.

Q. What do you mean by a conversation? A. I want to know what you mean?

Q. I mean what common people mean, not super-subtle people. A. I will answer your question.

Q. How many conversations have you had with him on this subject? A. Not many; I don't know how many.

Q. Had you six? A. I don't think so.

Q. Had you five? A. I guess you have got to the limit—about close enough. I don't know how many.

Q. Had you five? A. I don't know how many we had.

Q. Will you swear that you had four? A. I will swear that I talked to him about it, but I don't know how many times—not many times.

Q. Have you spoken four times with him about it? A. I don't think that that appertains to the inquiry.

Q. The learned Judge is to be judge of that: A. I have had conversation with Mr. Kirkland the same as with other people.

Q. Had you one, I want to aid your memory? A. My memory does not need aiding.

Q. You have had one conversation for the key—have you not? A. I won't answer the same thing more than two, or three, or four times.

Q. Have you had two conversations? A. I have spoken with Dr. McLellan about this.

Q. How many times? A. I don't know.

Q. Did Mr. Kirkland discuss Brown's evidence with you? A. What do you mean by "discuss"?

Q. Did he talk over Brown's evidence with you? A. He spoke to me, or we spoke—words passed between us about Brown's evidence, as well as others.

Q. When was that—before or after Brown was examined? A. We spoke about Brown's evidence after he was examined. It would be pretty hard before, as neither of us knew what he was going to say.

Q. Was Brown's name mentioned to you before you came here—mentioned to you by Mr. Kirkland? A. I think the name of Brown was mentioned; we talked about some things he had said.

Q. When had you the conversation; since Brown's evidence? A. I saw Mr. Kirkland last night.

Q. Where? A. I saw Mr. Kirkland at his own house.

Q. Did you go over with him, the evidence you were to give here to-day? A. Some things were said about what would be expected of me, so that I would be able to give clear and definite answers, and think of anything.

Q. Did Mr. Kirkland tell you he would expect you to come here and contradict Brown's evidence of last night? A. No; he did not tell me anything of the kind, and if any one told me he would want me to contradict a person he would mistake me. I have a mind of my own.

Q. What took place at his house? A. He gave us a cup of coffee, some pears and so on.

Q. What did he say to you about this examination? Did he go over the Examination Papers in Chemistry of June and July, 1874, for first-class Provincial certificates with you? A. He did not go over any Examination Papers with me.

Q. Did he take any newspaper and point out certain answers that Brown made? A. We had a newspaper in our hands. I don't think that he pointed them out to me.

Q. Did you read them there? A. Yes, and before, too.

Q. If you read them before, what led you to read them a second time? A. Others were there, and I think I glanced on the paper.

Q. Who else was there besides you and Mr. Kirkland? A. Where?

Q. At Mr. Kirkland's house last night? A. Mrs. Kirkland was there.

Q. Was any gentleman there besides Mr. Kirkland? A. Yes.

Q. Who? A. I was there myself.

Q. Besides that gentleman yourself, and Mr. Kirkland, was any other gentleman there? A. I have no objection, on my own account, to your pursuing that. I don't think, however, it is my place to say anything if I meet any one at a friend's house. I don't think it is my place to make any statement of the kind.

Q. What other gentleman besides that gentleman yourself and Mr. Kirkland was there? A. You can ask each one in succession and probably they will say they were there.

Q. Who were there besides that gentleman yourself and Mr. Kirkland? A. I don't think it is my place to answer that.

Mr. Davin.—I think that question ought to be answered.

The Commissioner.—I don't see why it should.

Mr. Davin to Witness.—Was there any other gentleman at Mr. Kirkland's house last night besides that gentleman yourself and Mr. Kirkland? A. I have answered all I will.

The Commissioner.—The question is quite proper. You are fencing in a way that I do not think is worthy of you. It is quite proper to see how any evidence is got up. Why do you not answer the question?

Mr. Davin to Witness.—Were there any others there? A. There were.

Q. How many gentlemen? A. I don't know.

Q. You don't know how many gentlemen were there? A. I do not.

Q. Was there a mob of gentlemen there, so that you could hardly move? A. I don't think a mob would be composed of gentlemen.

Mr. Davin.—We have the authority of Mr. Alexander Pope for the phrase, "A mob of gentlemen who write with ease." Was there a mob? A. I have told you I was there. There were other gentlemen there; I don't know how many were there.

Q. Besides Mr. Kirkland and yourself? A. I don't know.

Q. Try and remember? A. It is not important for me to remember.

Q. Were there two besides? A. You cannot fool me in that way.

Q. I will press the question? A. I don't know how many were there.

Q. Was the room crowded? A. I was not crowded.

Q. You have sworn distinctly that your memory is so strong that Mr. Brown could not have heard what he said he heard from Mr. Kirkland? A. I did not swear that.

Q. Yet you swear here that you cannot tell me how many gentlemen were at Mr. Kirkland's house last night? A. I think I could come pretty near it if I stopped; but it is not important for me to remember.

Q. The Judge is the judge of that? A. It is not important to me.

Q. Have you any idea how many were present? A. I have something of an idea.

Q. How many then? A. I don't know how many.

Q. Were there as many as three? A. You tried that before.

Mr. Davin.—You did not want to answer me then.

Mr. Kirkland.—I wish the witness would give all the facts.

The Commissioner.—There is nothing at all in the fact of witness being spoken to, and apart from the way in which the witness is giving his evidence, I would be very sorry to entertain any feeling of the kind; but he is doing his best to cast a suspicion upon what by itself is not a matter calling for anything of the kind.

Examination resumed

By Mr. Davin.

Q. How many gentlemen were present there last night? A. I don't know exactly how many there were. If I were to count them up I could tell pretty nearly.

Q. Count them up? A. Somewhere from ten to a dozen, I cannot be sure.

Q. At that meeting was the evidence given by Brown on Tuesday discussed? A. There was something said about it between Mr. Kirkland and myself and one or two others.

Q. What did Mr. Kirkland say to you about that evidence? A. I don't think he said anything specially; he merely pointed out what statements Brown had made. I remember saying my recollection was different to Brown's, or something of that kind; I don't think he asked me.

Q. What further occurred? Was that the first thing that occurred at the meeting? A. No, it was not.

Q. What further occurred besides that question and the cup of coffee? A. All that occurred with me was that I entered the room, spoke to a number of persons that I happened to meet there, and with whom I had been acquainted before. Then Mr. Kirkland took the paper; we looked at some points that had been brought up, and I could not give the exact words that were said about them.

Q. There was some discussion? A. There was some talk about them.

Q. And you were asked to come here to-day and contradict Brown—were you? A. I was not.

Q. Were you asked what you would say here to day? A. No.

Q. You were not asked what you would say here to-day? A. He never asked me.

Q. Did anybody ask you? A. No one asked me that question.

Q. Was Mr. McLellan at that meeting? A. He was.

Q. Did he ask you what you would say? A. He did not.

Q. Was Mr Hughes at that meeting? A. He was not; not while I was there.

Q. Mr. Glashan? A. He was not.

Q. Mr. Buchan? A. No, not to my knowledge.

Q. Mr. McLellan was? A. Yes.

Q. Did he point out any features in Brown's evidence? A. Not to my recollection.

Q. Will you swear he did not do it? A. I don't think he said anything about Brown's evidence to me. I cannot swear he did not to anybody in the room.

Q. At what other times did you meet Mr. Kirkland? A. I suppose you mean in regard to this?

Q. Yes. A. Never in regard to this.

Q. I thought you said you met him six times? A. No.

Q. Several times? A. No.

Q. I think we have it down. A. No, you tried to get me to say so, but you did not succeed.

Q. You said you had met him several times in regard to this inquiry? A. I did not.

Q. Do you mean you have only met him once in regard to this inquiry? A. Let me think. I have met him by appointment only once in regard to this inquiry.

Q. Then by accident, hap-hazard? A. By accident I met him on the street once, and this was casually mentioned among some other things.

Q. Not a third time? A. Not to my recollection at present.

Q. At present? A. I don't think I ever opened my mouth to him on any other occassion. I met him accidentally once on the street, and there were some other things I wanted to speak about on our own private affairs.

Q. Why, when I asked you if you had met Mr. Kirkland once, did you hesitate, and prevaricate and fence? A. I did not prevaricate. That amounts to telling what is not true.

Q. Why, when I said, did you meet Mr. Kirkland once, did you prevaricate? A. When you began questioning me on that subject, I was a little in doubt whether it was a proper thing for me to answer, and to say what I saw at a friend's house. I did not know whether I ought or ought not to answer, as I am not accustomed to examinations of this kind. I did not want to violate the rights of hospitality.

Q. You said, no more attention was paid to the points which afterwards appeared in the examination papers than to the others. Will you swear that no more attention was paid to those points? A. I cannot make a mathematical calculation.

Q. Will you swear that more importance was not given to these questions? A. I will affirm that I do not think there was more importance given to those than to others, and at the same time I think I know what importance was given to them.

Q. You remember all that? A. My bread and butter depends on that.

Q. Do you attach as much importance to affirming as other people do to swearing? A. I think likely I do. I tell the truth at all times. That question need not be raised. My evidence is given on the same ground as any other man's oath.

By Mr. Kirkland.

Q. The first meeting we had was after you had been summoned, was it not? A. It was after I received the summons.

Q. We met on the street? A. We did.

Q. You told me you had been summoned? A. Yes.

Q. Did you tell me anything else? Do you recollect anything else that occurred? A. I do not remember.

Q. We did not meet from that time until last night, till I asked you to come to my house and tell me what evidence you could give? A. No, I never saw you until I saw you in this room on Tuesday.

Q. I asked you to come to my house to see what evidence I could get? A. Yes.

By Dr. McLellan.

Q. Was it your impression that those questions were given out for a mere cram? A. No, I had no such impression.

Q. Did Mr. Kirkland teach the subject of Chemistry in a sort of superficial way, as if it did not matter whether the students thoroughly mastered the subjects? A. He did not.

Q. Did he devote much time to Chemistry? A. I forget about the time. I remember there was time enough devoted to it to master the course thoroughly, as laid down for first-class teachers.

Q. You think he directed his teaching so as to make the students thorough masters of the entire course prescribed by the Education Department? A. I am sure he did.

Q. You don't think he made any special teaching, or directed his attention specially to those points which appeared in the Examination Papers? A. I don't think he did.

Q. You think the other subjects connected with the course were as thoroughly taught? A. They were; all the subjects. I attended on his lectures.

Q. I spoke to you once about the question of resemblance. Do you remember my asking your opinion of the resemblance—whether there was any undue resemblance? A. I remember you asking me about the subject and giving me papers.

Q. I asked you to compare certain University Papers with the lectures given by Mr. Kirkland, in order that I might determine whether you thought there was any resemblance there? A. Yes. I did examine a number of such papers.

Q. How many of such papers did you examine? A. I examined ten papers.

Q. Set by University of Toronto examiners? A. Yes.

Q. Name some of the examiners. A. Those particularly of W. H. Ellis, M.A.; W. Oliver, B.A.; and H. Croft, B.C.L., for the years 1872, '73, '74, '75 and '76. Those are the papers I examined.

Q In your opinion did Mr. Kirkland's lectures cover pretty well the ground taken by the questions, or involved in the questions in those papers that you examined, or any of them? A. If you except University questions, which do not come within our course, his lectures were quite as appropriate to enable the candidate to pass those University examinations as the paper that we received from the Central Committee at the close of the term.

Q. You said in your cross-examination that there was, of course, a similarity between the lectures on Chemistry and the examination paper set by the Central Committee examiner, because the teacher taught on a certain prescribed course, and the examiner examined on the same course. In your opinion, was there any greater resemblance between the paper set by Professor Croft and Mr. Kirkland's teaching than between the Central Committee's paper and Mr. Kirkland's teaching? A. I should say there was as much resemblance in the one case as in the other.

By Mr. Hughes.

Q. Did I ever ask you to give evidence before the Commission? A. No.

Q. Did I ever tell you I would like you to give evidence in favour of any parties connected with the Commission? A. I don't remember your opening your mouth to say a syllable to me at all on the subject.

By Dr. McLellan.

Q. Did we have any conversation about Brown's evidence last night? A. I don't think a syllable passed.

Q. I did not suggest what you should say? A. No man ever suggested to me a syllable of what I should say in reply to any question.

By Mr. Kirkland.

Q. Until last night I did not know that Brown and you boarded together? A. No. I merely made that remark.

Q. You volunteered that? A. Yes.

Q. Then I read you portions of his Evidence and asked you what you recollected? A. Yes; that is all that was done.

Q. I did not suggest what you should answer to-day? A. No living person suggested a syllable that I should answer.

NEIL M. CAMPBELL affirmed :—

BY MR. KIRKLAND.

Q. You attended the Normal School during the session ending July, 1876 ? A. I did.

Q. How long have you been a Teacher ? A. Since the year 1855.

Q. You are at present Head Master of the Model School for the County of Elgin ? A. I am.

Q. Miss Montgomery was your fellow student during the last half of the session ? A. She came in January, immediately after the holidays, and remained till towards the close.

Q. Have you looked over the notes alleged to have been taken by her ? A. I have.

Q. She says all those notes were given two or three weeks previous to the end of the session. Is that true ? A. It is not.

Q. You swear positively it is not ? A. I do.

Q. Were there any notes given towards the end of the session other than in the regular course of the lectures ? A. There were not.

Q. Were the notes of Miss Montgomery treated of or given under the heads of the subjects of which they treated ? A. They were.

Q. The note of phosphorus, for instance, was given when I was lecturing on phosphorus ? A. It was.

Q. In other words, it is the substance of the lecture on phosphorus ? A. It is.

Q. The note on arsenic is the substance of the lecture on arsenic ? A. Mine is the same, and it was taken while the lecture on arsenic was going on.

Q. Then you positively swear that this statement is false,—that all those notes were given two or three weeks previous to the end of the session ? A. I do.

Q. In giving questions or in asking questions did I emphasize or by my manner in any way convey the impression to you, as far as you know, or to any of the other students, as far as you know, that the questions would occur in the final Examination Papers ? A. I could not gather from anything that occurred that any question would occur in any Examination Paper.

Q. Did I, in any manner, emphasize those questions ? A. In no way whatever.

Q. Miss Montgomery says she was struck with the resemblance of the whole paper. Did it strike you that there was any undue similarity between the Examination Papers and my lectures and the questions given out to the students during the session ? A. It did not strike me at all that there was anything peculiar about it. I thought we went over the whole ground in Chemistry, and that we were to be examined in Chemistry ; and if we went over the whole ground with you we should be able to answer that paper, which I am sorry to say we did not as well as we ought.

Q. I suppose you and the other students discussed the papers in the waiting-room during the examination ? A. We always had a talk over the papers after coming out.

Q. A very free talk amongst yourselves ? A. Yes.

Q. Did it strike any of you that there was an undue similarity between the questions and my notes or lectures ? A. I never heard one of the students say so.

Q. You don't recollect any of the students saying anything about it ? A. I do not. I remember in regard to the physics paper particularly that we thought it was a really difficult paper—the physics paper of 1876.

Q. Do you remember what was the number of marks you got on the physics paper ? A. I think about 40 per cent.

Q. Do the questions in the final examination paper form part of the general treatment of the subject in my lectures ? A. They do generally. I think there is one there which was not treated on at all.

Q. For instance, if the terms "bromides," "iodides," or "chlorides" occurred they would be treated of under the heads of those subjects ? A. They were.

Q. Have you any fuller notes on questions in chemistry and physics which occurred in the examination papers, than you have on other important points, such as water, and silver, and so on ? A. I have more notes on silver than on anything else.

Q. Turn up the Chemistry Paper for 1876. A. I have done so.

Q. At whose suggestion? A. I saw it in the London *Advertiser*, I think. All the papers were printed there.

Q. No one suggested to you to look it up? No.

Q. You told me voluntarily you had done so? A. I did.

By Mr. Davin.

Q. Have you your notes here? A. I have a few notes that I took from my note-books. I have not the whole of my note-books here; they were too large to carry.

Mr. Davin objected that the note-books must be produced if the witness was to be questioned on them.

By Mr. Kirkland.

Q. Did anything occur directly or indirectly during the session, after the examination or at any other time, that would lead you to infer that I had any information of the questions in the final examination papers? A. There was nothing whatever.

Q. What time was given to the study of Chemistry during that session? A. Two hours per week in the lecture-room and one hour per week in the laboratory, but we did not go into the laboratory until we had got along with the lectures. I think it was immediately after the Christmas holidays, and we were in once a week as a rule until the close of the session.

Q. Mr. Slater gave evidence to this effect: "I don't't think you lectured once a week in Chemistry." Was he a fellow-student of yours? A. He was for some time.

Q. Is that evidence given by him true? A. That's not true.

Q. It is positively untrue? A. We had two lectures a week in Chemistry except when you were away.

Q. And I was not often away—was I? A. Once or twice during the session.

Q. And on all other occasions you had two lectures a week, and an hour in the laboratory for practical work? A. Yes.

Q. Could any student absent himself from any of those lectures and attend any of the other lectures? A. Not without permission.

Q. Slater says: "I don't think you lectured, when I was there, once a week on Chemistry." That statement is untrue? A. It is.

By Mr. Davin.

Q. Your profession is that of a teacher, I suppose? A. Yes.

Q. Where do you teach? A. In St. Thomas.

Q. Who invited you to come here? A. I was sent for to come.

Q. Who sent? A. Dr. McLellan. I received a telegram from Dr. McLellan asking me to come here.

Q. Had Dr. McLellan spoken with you about this examination previous to sending the telegram? A. Never.

Q. Any of the Central Committee? A. Never.

Q. Did you meet him when you came? A. I met him outside the door yesterday.

Q. Did you speak about evidence? A. No.

Q. Did you meet Mr. Kirkland? A. I did.

Q. Were you at his house last night? A. I was.

Q. Can you tell me how many gentlemen were present? A. I could not, because some of them were strangers to me.

Q. Have you any idea how many were present? A. I think about ten; I would not swear to ten.

Q. What did you discuss there? A. The most discussion I had was with my old fellow-students about things that took place before, in the session when we were here. We were talking about the times we had.

Q. About what took place in 1876? A. About the fun we used to have together.

Q. Did you speak about the examinations? A. Very little.

Q. About the instruction you received in Mr. Kirkland's classes? A. No; I don't think we did.

Q. Did you speak with Mr. Kirkland about the instruction you received in his classes? A. I indicated to Mr. Kirkland what evidence I could give without anybody saying anything to me.

Q. Without Mr. Kirkland himself asking you? A. I knew what he wanted me for. He wanted to know, of course—he told me here yesterday he wanted to know—what my evidence would be, what evidence I could give.

Q. Did Dr. McLellan say anything to you last night about the evidence you should give here to-day? A. Not a word.

Q. But Mr. Kirkland invited you to his house last night? A. Yes.

Q. When? A. Yesterday.

Q. Did you hear Brown's evidence? A. No.

Q. Was your attention called last night to his evidence? A. No.

Q. Did you hear Miss Montgomery's evidence? A. Yes.

Q. Was your attention called to it? A. No. I spoke to Mr. Kirkland about it myself.

Q. Was her evidence read over to you last night? A. No.

Q. Was Miss Montgomery your fellow-student? A. She was from January to July.

Q. What degree did you take in the Examination? A. A First.

Q. A., B. or C.? A. C.

Q. The same degree as Miss Montgomery? A. No.

Q. She took a 2 A. in 1876 and 1 C. in 1877? A. Yes.

Q. Where did you see her notes? A. I saw them printed in the papers—to-day's *Globe* and *Mail*.

Q. Why did you not bring your note book here? A. I am a poor hand at carrying anything walking, on account of my lameness, I have to use a cane.

Q. What size is your note book? A. It is one of those rough books in the Department.

Q. What is the size? A. About the size of the Journal of Education. I have three of them.

Q. All full of Chemistry notes? A. Of my notes taken during the session.

Q. Are your Chemistry notes in more than one book? A. Yes; I did not leave room in my note book for the Chemistry, and had to put some of it further on.

Q. Three or four weeks before the examination, did Mr. Kirkland call special attention to any subjects in Chemistry? A. No.

Q. Did he call attention. A. Just as he did during the whole of the session from the beginning.

Q. Did he call special attention to mineral water? A. No.

Q. Three or four weeks before the close of the session? A. No.

Q. Through the session did he call special attention to the subject of mineral water? A. No.

Q. Did he give you this question throughout the session? "A mineral water in addition to chlorides contains small quantities of iodides and bromides. How would you detect the presence of these salts in water?" A. In the very beginning of the session he treated of water, and towards the close, to the best of my recollection, he did not touch it at all.

Q. Do you remember his giving you this question at the beginning of the session? A. No; I don't think he gave us that question; he gave us different portions at different times.

Q. Did he give you that question in substance? A. If it were animal and vegetable matter I would say yes at once, but it is mineral matter; I cannot say positively; but we ought to have answered that question from Mr. Kirkland's lecture in the beginning of the session.

Q. How did you get that question in regard to carbon and diamond? A. We discussed carbon sufficiently to answer that question.

Q. And he drew special attention to it? A. No.

Q. Did you get question 3,—"Describe how you would prove bone-ash to consist chiefly of calcium phosphate. Explain the decomposition of bone-ash by diluted sulphuric

acid. Explain by means of symbols the reaction which takes place when a solution of sodium carbonate is added to one of phosphoric acid ?" A. We did not; we got sufficient on phosphorus to answer that question.

Q. Did you get the fourth question, on arsenic? A. Arsenic was fully treated of.

Q. Three or four weeks before the examination, was that subject impressed especially on your minds by Mr. Kirkland? A. It was not.

Q. Was it during the session? A. It was.

Q. "Describe the preparation of potassium," and so on,—did you get that question? A. It was fully discussed in the lectures.

Q. Did you get the question about gunpowder? A. Gunpowder was fully treated of in the lectures.

Q. Did you get the question about lead? A. I don't remember that one; we got lead, but whether that would cover it, I don't know. I did not answer it because I could not.

Q. You got lead, though? A. Yes, we got lead.

Q. Did you get the question about the preparation of pure silver? A. We got enough on silver to answer it; but we did not get that question.

Q. At what period of the session? A. I could not give the date, but as far as I can recollect, about May,—about six weeks before the examination.

Q. Did you get the composition of iron pyrites? A. Those were all treated of.

Q. You read Miss Montgomery's notes in the papers? Do those notes answer the questions? Are you struck with the similarity between the notes of Miss Montgomery and the questions in the Examination Papers? A. No.

Q. Is Chemistry a wide subject? A. It is middling wide.

Q. You are a Chemist; you took high marks in Chemistry? A. Not very high.

Q. You took First C.? A. That was on the general thing.

Q. Will you say that those subjects on the Examination Papers in Chemistry for July, 1876, were not specially treated of in Mr. Kirkland's lectures? A. I do most emphatically.

Q. That is to say that Mr. Kirkland gave no more prominence to those than to all the other subjects in Chemistry? A. Not a bit.

Q. How many times a week did he lecture. A. Two hours a week, or rather two lectures of three-quarters of an hour each.

Q. An hour and-a-half a week? A. Yes.

Q. How long did the session last? A. From September to July. Take off about four weeks for the Christmas holidays.

Q Then you have how many weeks? A. Ten months. Take four weeks off and a week at Easter would make five weeks off—about 38 weeks.

Q. 38 weeks at 1½ hour per week, would be how many hours? A. 57.

Q. In 57 hours could a teacher carry you over the entire subject of Chemistry? A. As far as the first-class course required; and we had an hour a week at practical work in the Laboratory besides this.

Q. In 57 hours could a teacher carry you over more than those questions would cover, that I read to you? A. Yes, because Mr. Kirkland took up every subject in Roscoe one after the other, until we got over the course. But he did not take up everything in Roscoe; it did not require it.

Q. So that if one stuck to it for a week's hard reading, it would take him over the whole of Chemistry? A. No; you might read it, but you could not get it up.

Q. Are you not expected to answer questions in the Examination Papers that have not been gone into by Mr. Kirkland? A. He ought to go over the whole course.

Q. Are you not expected to answer questions that he has not gone over? A. On no subject that he has not gone into.

Q. But questions that he does not go into. A. I do not really understand the meaning of your question.

Q. You say there are hundreds of subjects in Chemistry; and suppose Mr. Kirkland went over ninty-nine of these subjects, it will not absolve you from answering the other question? A. It is not expected that the Central Committee will put any questions on that Paper out of the first class course.

Q. Do you mean outside of what Mr. Kirkland teaches in his classes? A. No.

Q. Do the Central Committee invariably set such questions as bear on the very points of the subject lectured on by Mr. Kirkland? A. No, I do not mean that.

Q. Do you know what the Central Committee do in this regard? A. There is a rule laid down to guide the Central Committee. There is a course that first-class candidates are to be examined on. The Central Committee, I think, are not expected to go beyond that course.

Q. Do you know, of your own knowledge, there is such a rule? A. I never said that they did go out of it.

Q. In reading the Examination Papers at the examination, were you struck with the similarity of the questions to the teaching of Mr. Kirkland? A. I was not.

Q. Were any of the questions similar to those put by Mr. Kirkland during the session? A. The lectures treated fully on those questions—on all that I answered.

Q. Did they treat fully on other questions? A. His lectures did.

Q. How many other questions? A. On silver.

Q. We have silver here? A. Very little. They treated more fully by a good deal on animal and vegetable decaying matter in water, than mineral.

Q. What else? A. He took up the subjects of oxygen, hydrogen, nitrogen, silver, bromide, iodide, floride, mercury, and the different compounds of all these.

Q. You said you could not gather that anything would occur at the examination, from anything that took place at the lectures. Is that true? Could you gather from what took place in Mr. Kirkland's lectures anything regarding the papers you got? A. I could not.

Q. Did you ever talk with Miss Montgomery about this matter? A. Never.

Q. Before the Examination, did you talk with anyone? A. No.

Q. Was it the common talk that the Examination Papers might be gathered from what Mr. Kirkland emphasized? A. Never. We were not allowed to talk with the ladies.

Q. Did you transgress the rules? A. No.

Q. It did not strike you that there was any undue similarity between the notes of Miss Montgomery and the questions in the Examination Paper? A. No; I did not see any.

Q. Where did you get that phrase, "undue similarity?" A. I think I got it from Mr. Davin. I think you were the first to use it—I got it here, at all events.

Q. You did not hear it before you came here? A. No.

Q. Did it strike you that there was any similarity between the notes of Miss Montgomery and the Examination Papers? A. Nothing more than any other notes.

Q. You swear positively that nothing occurred before the Examination Papers were given out that would lead you to expect the very Examination Papers you got. A. I do.

Q. You swear positively that after they were placed in your hands you were not struck with the similarity between them and the teaching Mr. Kirkland emphasized? A. Keep out "emphasized."

Q. Did he emphasize certain teaching? A. No.

Q. Did he not tell you one part was important? A. Not, I think, that one was more important than another.

Q. Did he not say one style of teaching belongs to one examiner, and another style to another? A. I did not hear him say so.

Q. He did not put certain things before you and say, "Get these up, because these are questions which I know the examiner will ask? A. Never.

By Mr. Kirkland.

Q. Miss Montgomery stated that there was a change in the teaching of my Algebra about May. Did you observe any change at all in the style of my teaching Algebra during the session? A. I did not observe any change, because you kept right on with the work. You did not take us back again. I did not see you change anything at all of the teaching between one part of the session and another.

Q. Is the statement true? A. There was no change made.

Q. In other words, you went on with Algebra just the same as usual? A. I did.

Q. Therefore what Miss Montgomery states is untrue? A. As far as I know.

Q. Did you hear any other of the students say there was a change; was that the impression? A. I don't think I heard one student refer to it.

Q. You stated that the question of potassium was fully discussed in class. Do you mean the question, or the subject of potassium? A. The subject.

Q. You stated that Chemistry is a wide subject. Do you mean the prescribed course? A. No.

Q. That is not a wide course? A. No, it is not. The course laid down for first-class teachers is not a wide course.

Q. Mr. Davin seems to think it is impossible to go over the prescribed course in the time. Did the students of the first division know anything of Chemistry before they came there? What certificates had they before? A. I went through the first division before I got a second A. from the first-class papers. Mr. Tom had a second A; Mr. Barnes held a first B; and Miss Montgomery had a second A and B. I think they must all have known considerable about Chemistry.

By the Commissioner.

Q. Is it necessary before entering the first division to have a previous knowledge of Chemistry? A. They must have had a second-class certificate.

By Mr. Kirkland.

Q. They must have passed an examination in Chemistry? A. Yes.

Q. So you were teaching Chemistry to pupils who did not need the elements at all? A. Yes.

Q. Mr. Davin gave you a number of subjects commencing with water and asked you if I had treated others besides those. Did not those include about half of the whole subjects? A. They did.

Q. Did I treat of such subjects as the atmosphere, nitreous acid, and other compounds of nitrogen? A. I said you treated all those and their components.

Q. I did not leave out any important subject in Chemistry? A. Not in what I consider the course.

Q. You conveyed the idea that I treated of all subjects equally? A. I did not mean to convey such an impression. There are some subjects in Chemistry which are more important than others. They were more fully treated, but all of them I considered were treated pretty fully—every one of them.

Q. From everything you know personally, from all you learned incidentally, or from what you heard, there was no impression amongst the students that I had any knowledge of the papers? A. Never.

John E. Tom, sworn:—

By Mr. Kirkland.

Q. Did you attend the Normal School during the whole of the session ending July, 1876? A. I did.

Q. You are at present one of the masters in the St. Mary's High School? A. I am.

Q. You are a teacher of Chemistry in that school? A. I am.

Q. Miss Montgomery was one of your fellow-students? A. She was.

Q. Did you look over the notes given in evidence by her? A. I did.

Q. She says that all these were given two or three weeks previous to the end of the session. A. It is not true.

Q. Positively that is untrue? A. Positively it is untrue.

Q. Look at her third note Read it. "Page 152. Phosphorus—Nat. Sources—Bones of animals. Preparations—(1) burn the bones, (2) distil in iron vessels and so keep the animal matter. Glue is made out of the animal matter; (3) add HSO_4, and $CaSO_4$ will settle to the bottom and may be removed; (4) evaporate; (5) add charcoal and heat. CO is

formed and P will distil over and is condensed in water. Will you state when that note was given in the class? A. It was given in the last part of May or first of June.

Q. In what connection? A. It was given with other notes that were given on phosphorous.

Q. In the way of the ordinary lectures on phosphorus? A. Yes.

Q. Taken up in the course? A. Yes.

Q. When was the question as to the leading properties of arsenic, No. 4, given? A. Before 7th March.

Q. You have that note in your note-book? A. Yes. The second lesson after that is dated March 7th, 1876. I dated it in the class-room at the time the lecture was given.

Q. That is the only note you have on arsenic? A. That is when we took up arsenic.

Q. "A test for this: To arrange as for a singing tube and hold a piece of porcelain over it as it burns and if we have arsenic it will leave a black surface." That is the only note you have on arsenic? A. I don't swear it was the only time arsenic was taken up. It was then that the test was given which is mentioned in the note, as I understand it. That is the last part of question No. 4. The substance of that was given before 7th March.

Q. When was Miss Montgomery's note in reference to question No. 2 given, viz:—"Page 84. Phosphorus will go out in CO2, but will relight when brought into the air again, owing to the heat of the iron holding the phosphorus; phosphoric acid is left; CO2 extinguishes light."? A. Before March 7th, and directly after the Christmas vacation.

Q. The other notes here, were taken up in the course of the lectures; some, of course, would be towards the end of the session? A. Yes; some were towards the end of May or beginning of June.

Q. This one on page 190? A. It was given before 22nd May, 1876.

Q. Then that on mercury and the others must have been given later, of course? A. I have the dates.

Q. In regard to the first question. When was the note at page 104 of Miss Montgomery's book given? A. It was given in the lectures in the week in which March 21st and 23rd would come.

Q. When was the fourth question, page 160 of her notes, given? A. Before 7th March the greater part of it. I do not say that all of it was given on 7th March.

Q. When was the note on potassium, page 190, given? A. Before 22nd May.

Q. When was the note on the sixth question given? A. Before 22nd May.

Q. When was the note on the seventh question given? A. During the last part of May or first part of June.

Q. When was the note on the eighth question given? A. Part second was given before the Christmas vacation. The other parts were given in May or June.

Q. During the lecture on silver? A. Yes.

Q. When was the note on iron pyrites given? A. The composition of iron pyrites was given to us in the lecture on silver; it was given before 22nd March.

Q. You have no special reference to the composition? A. I remember this particularly because you said it was called false gold.

Q. Then the whole of those notes of Miss Montgomery's, or nearly so, were given in the ordinary course of the lectures on the different subjects on which they treat? A. They were.

Q. In lecturing on Chemistry and Physics, did I leave out any important points, or did I specially lecture on those parts which occurred in the Examination Papers? A. No, you did not.

Q. I gave lectures on the important points in Chemistry without leaving out any? A. You gave them—as I find it necessary to give them—in order to prepare the class for Chemistry. Some points we have to dwell on more particularly than others, but they were not given out of the regular course of Chemistry.

Q. In asking questions of the class, did I convey any impression to you, as far as you know, in anyway, that I had any knowledge of the questions to be asked at the Examination. A. You did not.

Q. When you received the Examination Paper, were you struck with the similarity of the whole questions to the notes of lectures which you had received? A. I was not struck with any similarity. That is, I was not struck with the fact that the questions we

had on the paper were just the questions you had given us, I expected when I was getting lectures from you that the subject would be so treated that I could answer from what I got from you and read myself. That is what I expected, though I did not realize it.

Q. After the Examination I suppose you discussed the papers in the waiting room after you came out? A. We spoke about different questions. We would take the paper and read over one question after another and speak of how we had answered certain questions.

Q. Did any one suggest, or make the observations that the questions were very like those received from me or very like my lectures? A. No, there was nothing of the kind.

Q. There was no observation of that kind at all? A. No, none of any kind.

Q. From anything that occurred during the session in regard to the questions—the manner of asking them or anything else you can think of—did it occur to you, or did it occur to any one else that I had information of the Examination questions? A. It did not occur to me that you had. I did not hear anyone say you had, or that they thought you had.

Q. Nothing at all about that? A. Nothing.

Q. Did you observe towards the end of the session, about May or thereabouts, any particular change in the teaching of the subject of Algebra? A. I did not.

Q. Did I continue the subject as I had been going on with it? A. You did.

Q. I did not go back to rub up some points? A. You did not.

Q. What was the time given to the study of Chemistry? A. We received two lectures a week, as far as I recollect—one lecture on Monday, in the forenoon, and one on Thursday; and previous to this lecture in the class-room we were in the laboratory from 8 till 9 o'clock making experiments.

Q. Did I drop the subject occasionally or often? A. No, you did not; you were away once or twice during the session.

Q. Mr. Slater has stated on oath that the lectures on Chemistry did not average one a week. Was Mr. Slater not there part of the session? A. He came to the Normal School at Christmas as far as I remember, he left at the Easter vacation.

Q. He has stated that during that time my lectures on Chemistry did not average one a week. Is that true? A. I can state positively that they did—that they averaged two a week with one hour in the laboratory. There might be one or two exceptions.

By Mr. Davin.

Q. Are these what you call rough notes? A. Yes. Those in these books and those in the other books were taken in the Lecture-room.

By Mr. Kirkland.

Q. I wrote to you some weeks ago asking you to make out a syllabus from your rough notes on Chemistry and Physics, of all questions in your note book. Did you do so? A. I did.

Q. Did you bring it with you? A. I have it.

Q. Produce it? A. They are here.

Note-books put in and marked Exhibits Q, T, U, V, W, X, and Synopses put in and marked Exhibits Z Y and Z.

Witness:—Both these synopses were written before I came to Toronto.

Q. I simply asked you to make out a syllabus of all the subjects I had lectured on during the classes. You swear you made these out from your rough note books? A. Not expecting to come here I wrote this: "I solemnly declare the following to be an outline of the lectures on Chemistry, delivered by Mr. Kirkland during the 1854 session." And in regard to Physics, "I solemnly declare the following, as far as I have knowledge, the substance of the lectures delivered in the Normal School, by Mr. Kirkland, during the 1854 session, on the above named subject (Physics)."

Q. Appended to these two are the questions given in the class? A. All that I have; and I know all are written here. In those papers in Chemistry there are about fifty questions given for home-work—the part for home.

Q. All that you got are there? A. All excepting one monthly examination, and that paper is printed as it was given to us.

(The following are the Synopses referred to.)

(Exhibit "Y.")

St. Mary's, Nov. 10th, 1877.

I solemnly declare the following to be an outline of the Lectures on Chemistry delivered by Mr. Kirkland during the 54th Session.

John E. Tom,
English Master, St. Mary's High School.

Synopsis of Chemistry Notes.

These were all thoroughly discussed.

1 The method of making chemical experiments, and explanation of chemical terms, as atom, element, monad, &c.
2 Oxygen, prep., uses, test, properties, compounds, &c.
3 Hydrogen, preparation of, test, " "
4 Water, composition, impurities, properties, divisions, hard and soft, tests for impurities.
5 Atmosphere, mixture to prove, constituents, uses of, &c.
6 Nitrogen, to prepare, prop. compounds of.
7 Nitric acid, prep., prop., uses, tests, sources, &c.
8 Nitrous oxide, test as to composition.
9 Nitric "
10 Ammonia.
11 Carbon, forms, compounds, &c.
12 Carbon Dioxide, prep, prop., test for carbon in carbon dioxide, test for composition of
13 Carbon monoxide, prep., prop., test for, &c.
14 Types of the dif. compounds, as oxides, nitrates, &c.
15 Marsh gas, prep., prop., composition.
16 Olefiant gas, prop., how much oxygen needed to burn it.
17 Coal gas, prep., impurities, hyproducts, to remove impurities, &c.
18 Chlorine sources, prep., prop., test for chloride and chlorate.
19 Hydrochloric acid, prep., prop, &c.
20 Test for chlorides, bromides, iodides, flourides, and sulphides.
21 Bromine, prep., prop., test for, &c.
22 Iodine, " " "
23 Flourine, chief acid of, and its properties.
24 Sulphur sources, compounds of, prop., forms.
25 Sulphur dioxide, prep., uses, prop.
26 Sulphuric acid, prep., and all pertaining to it given thoroughly.
27 Hydrogen sulphide, prep., uses in testing metals.
28 Carbon disulphide, prep. and prop.
29 Phosphorus, prep. from bones, prop., &c., test for.
30 Silicon—three forms, flint an acid, why, &c.
31 Arsenic, prop., sources, compounds, preparation.
32 Arsenic trioxide, antidotes for.
33 Arsenic pentoxide, how formed, &c.
34 Arseniuretted hydrogen, prop., Marsh's test, how to distinguish from antimony, other tests, poisoning from, how to treat.
35 Flame, the theory of.
36 Potassium, prep., prop, sources.
37 Caustic potash, prep., uses.
38 Potassium carbonate, prep., uses, &c.
39 Potassium nitrate, sources, prep., uses, &c.
40 Gunpowder, composition, mixture or compound and reasons, manufacture of.

41 Potassium chlorate, test for chlorate, &c.
42 Sodium, prep., compounds, uses tests, salt-cake.
43 Calcium carbonate, prop., &c.
44 Calcium sulphate, where found, as in hard water, &c.
45 Calcium chloride, how formed, uses, &c.
46 Iron, sources, compounds, to prepare, different kinds, oxides of, steel, test for, &c.
47 Magnesium, prop., test for, compounds of.
48 Tests for tin, copper, silver, iron and lead.
49 Lead, prep. from galena, this also contains silver, how to separate these.
50 Mercury sources, prep., compounds, test, &c.
51 Silver sources, prop. compounds with oxygen to obtain from copper, test for.
52 Antimony, how to distinguish from arsenic, &c.
53 Tin, the oxides, alloys of.
54 Gold, how to obtain by amalgamation, &c.
55 Platinum how obtained, uses, &c.

We had also a good deal of practice in the laboratory so that any one who paid ordinary attention to the subject as taught, should be able to pass any of our examinations, and it is my candid opinion, that from the lectures given on Chemistry, I could pass any first year chemistry examination at Toronto University, and make higher marks than I did on the paper given us.

These questions were given either for home or class work.

Paper 1.

1. (*a*) How can hydrogen be prepared from sulphuric acid ?
(*b*) What weight of hydrogen will 10 grains of zinc liberate from dilute sulphuric acid ?
2. If we were to substitute for zinc, iron, how much hydrogen would be given off ?
3. In what sense is iron said to be equal to zinc, and iron and zinc to (H2) of hydrogen.
4. From what other acids could hydrogen be prepared ? If you add zinc to nitric acid would you get H ?
5. What weight of hydrogen could I obtain from 70 grains of water by the action of sodium ?
6. Explain why a jet of pure hydrogen burns quietly in air while a mixture of the two gasses explodes on being ignited ?
7. What is meant by calling hydrogen a reducing agent ?
8. If 223 grains of lead oxide be heated in hydrogen what weight of water will be formed ?

Paper 2.

1. State the composition of pure atmosphere and how it is ascertained ?
2. What substances usually occur in the air, and what is the use of each ?
3. State the reasons for supposing the air a mixture and not a chemical compound.

Paper 3.

1. What weight of Potassium chlorate will be required to fill a gas bag of 20 litres at 15°C and 750 mm. pressure.
2. How many centimetres of oxygen and hydrogen at 10° C and 770 mm. can be obtained by the decomposition of 1 gramme of water ?
3. A gas bag has a capacity of 45 litres, how much manganese dioxide containing 70 per cent oxide is required to fill it with oxygen at 15° C, and 760 mm. pressure ?
4. Ten cubic centimetres of a gas are measured at 15° C. what volume will the gas occupy at 150° C ?
5. 100 cu. centimetres are measured at 100°C, what will be its volume at 100°C ?
6. 1,000 cu. centimetres of oxygen are measured at 749 mm. pressure, what will be the the volume at the standard pressure ?

7. A litre is measured at 0°C & 760 mm., what volume will it occupy at 15½°C & 740 mm.?

8. 170 volumes oxygen are measured at 10° C, what will be the volume at 0°C?

9. A gas has its temperature raised from 15°C to 50°C. at the latter temperature it measures 15 litres what was the initial volume?

Paper 4.

1. At ordinary temperature water absorbs 50 per cent. of its weight of ammonia. Find the amount of sal-amoniac and quick-lime to produce 10 kilograms of liquor ammonia.

2. How much marble and hydrochloric acid, 22 per cent. pure, are needed to yield 10 litres of carbon dioxide at 15° C and 760 mm.?

3. A manufacturer of bleaching powder wants 10 tons of chlorine. How much salt and manganese dioxide 59 per cent. pure and sulphuric acid 58 per cent. pure will be needed?

Paper 5.

1. Distinguish by example between a mechanical mixture and a chemical compound. How would you characterise the combination of the two principal gases in the air?

2. Explain the composition of water, giving formula and interpreting the letters and figures used.

3. Describe briefly the preparation of phosphorus, giving the two forms in which it occurs, and state the difference in appearance and characteristics of each.

4. Four glass jars contain each one of the four colourless gases, air—oxygen, carbon, dioxide and hydrogen. What steps would you take to determine the contents of each?

5. The atomic weight of oxygen being 16 and nitrogen 14, could any such body exist as $N O^2$.

6. Name and state concisely a law involved in the union of chemical elements.

(*b*) Explain the meaning of the term "valency" and distinguish between atom and molecule.

Paper 6.

1. How much ammonium chloride must I use in order to get 100 grammes of ammonia?

(*a*) How many cubic centimetres of ammonia will that be?

2. What is the capacity of a vessel that will hold 83 grammes of ammonia at 0°C and 30 inches barometric pressure?

3. If 29 cubic centimetres of ammonia gas be completely decomposed by a series of electric sparks what volume of gas will be obtained?

4. What weight of ammonia could be obtained from 267.5 grammes of ammonium chloride?

5. What weight of ammonia gas would be required to neutralize 4.9 grammes nitric acid?

6. Give the tests generally used to detect the presence of ammonia.

7. State how you would dry ammonia gas and why the ordinary drying agents cannot be used?

N. B.—I have not any other questions on chemistry, nor do I remember any others being given except one which was given on a mixed paper, and which I sent to Mr. Kirkland. This I solemnly affirm to be all that I can give on the subject, and all this I solemnly declare to be correct as far as I have knowledge.

JOHN E. TOM.

[Exhibit "Z."]

SYNOPSIS OF NOTES ON PHYSICS.

I solemnly declare the following to be, as far as I have knowledge, the substance of the lectures delivered in the Normal School by Mr. Kirkland, during the 54th session, on the above named subject.

JOHN F. TOM.

I. Heat is motion, how it is measured, theory of heat or potential energy.

II. Sublimation, vaporization, motion changed to heat by being arrested, motion indestructable.

III. Leslie's Thermometers, an explanation of.

IV. The anomalous expansion of different Substances.

V. Theory of liquids boiling, how the boiling point of liquids is changed.

VI. Radiation, convection and conduction of heat, what surfaces radiate best, and reasons.

VII. Theory of heating and ventilating rooms.

VIII. Different substances have a different rate of expansion when heated.

IX. Specific heat of the different substances, theory of.

X. Freezing mixtures, the theory of.

XI. Electricity, two kinds positive and negative, how generated, how collected (3 things necessary, electric-machines, how constructed), precautions in using an electric-machine, the uses of lightning rods, theory of them, electricity will turn a wheel on a pivot, theory of; Franklin's theory supposed one fluid.

XII. Light,—how we see objects—reflection of light, light comes in straight lines, light from a point.

XIII. Friction electricity detected by electroscope and galvanic deflection of a needle. How galvanic electricity is generated, the different batteries in use, their merits and defects, Daniell's, Bunsen's and Grove's, were set in operation by the pupils, and I think, Smee's also.

XIV. Light,—what it is—Emission and Wave theories, what hypothesis each theory requires. The prismatic colours, how obtained, Spectrum analysis, light from a substance will not pass though its own vapour, the focal distances of different lenses, cause of redness of sun in the evening.

XV. A magnet, how made, action of magnets upon each other, magnetic induction, permanent and non-permanent magnets, effects of the earth on the magnet needle, how to find magnetic intensity of the earth at any point.

XVI. Voltaic (batteries) piles, how constructed, the effect of the electric current upon a needle, induction of currents, Ruhmkorff's Coil, how constructed and the theory of.

XVII. The different electric machines in use, their merits and defects, the construction of different ones, as Armstrong's, Winter's, Carre's and Holtz's, the Leyden-jar and experiments with it.

XVIII. The different Telescopes, the ones described were Newton's, Gregory's, Astronomical and Herschel's. How to find the magnifying-power, focal length, different foci, &c., of each kind.

XIX. Stereoscope, theory of, how views are taken, to make images overlap, the Kaleidoscope, how constructed, &c., the Magic Lantern, theory of.

XX. Mirrors, plane-mirror, virtual image, formation of images—convex and concave mirrors.

XX. How to find the foci and images whether real, virtual, erect, or inverted: prisms, their effects on rays of light, lenses and microscope are fully described.

The following questions were given:—

I. Explain the mode of forming images.

II. Prove that the image of a luminous point placed before a plain mirror is on the continuation of the perpendicular to the mirror through the point and is as far at the back of the mirror as the point is in front of it.

III. Shew that in a plain mirror the image is of the same dimensions as the object.

IV. The image of a candle is visible in a looking-glass: draw the path of the rays which enable an observer to see it.

V. Two large plain mirrors are fixed to the opposite walls of a square room; examine the number and distances of the images of an object placed between them.

VI. On two adjacent walls of a square room there are two large plain mirrors, how many images of a candle in the room may a person see?

VII. Shew how to draw the course of rays by which the images in the preceeding question are seen.

VIII. How many images could a person see of himself?

Paper II.

I. Define principal focus of a mirror, and find the principal focus (a) of a concave spherical mirror, (b) of a convex spherical mirror.

II. Shew how to find the position of the image of a point not in the principal axis through the vertex of the mirror.

III. Distinguish between real and virtual images.

IV. Draw the course of rays by which an observer in a given position would see the image.

V. A concave mirror, the focal length of which is 12 inches, is held at a distance of 18 inches in front of a candle, where will the image be? Can it be received on a screen.

VI. The image of an object is distant 8 inches from a convex mirror of focal length 12 inches, find the distance of the object.

VII. What is the focal length of the convex mirror which will produce at a distance of 12 feet the virtual image of an object which is 3 feet distant from the mirror?

VIII. Give a description of Ruhmkorff's coil.

IX. How would you find the specific heat of a fluid at constant volume and constant pressure.

X. How is the magnetic intensity of the earth found at any point.

I. State the laws of the refraction of light

II. A ray of light falls on a surface of water so as to make with vertical an angle of 60°. Having given the refractive index—$\frac{4}{3}$, show how to construct the angle of refraction.

III. Show by a diagram that the bottom of a lake which you can see appears shallower than it is. What is the relation between the true depth and the apparent depth of the water?

IV. Trace a ray of light through a prism.

V. Define "principal focus," "optical centre," and "principal axis" of a lens.

VI. How is it that a coin placed in a tumbler looks larger when the tumbler is full, than when empty.

VII. A double concave lens of focal length 1 inch is used to look at an object half-an-inch from the lens, where is the image?

VIII. (*a*) With this lens where will be the image of an object $1\frac{1}{2}$ inches from the lens. (*b*) Shew how to find the focal length of a converging lens with a screen and a candle.

IX. If the candle and screen be 3 feet apart and the lens midway between them.

N. B. I have not any other questions on this subject, nor do I remember any more.

JOHN E. TOM.

Printed as it was given to us.

BY MR. EDGAR.

Q. From those note-books? A. Yes.

BY MR. DAVIN.

Q. These are rough note-books? A. Yes, and every part in Chemistry is there that I possess, or ever did possess.

Q. In these note-books you have taken down the lectures of Mr. Kirkland in 1876? A. Yes, and in the other one I wrote either in the class-room or in the waiting-room when I came out.

Q. What are those supplements? A. They are all on Chemistry, written either in the class-room or the waiting-room, except one page which I marked—which I wrote afterwards, since I have been teaching.

Q. Are there any notes in those four note-books, U. V. W. and X., which are found in this book marked Q? A. There are notes found in the one and also in the other.

Q. That is, there are rough notes here in these books which have been carefully copied into the other? A. I took them in the waiting-room—and if he said anything I did not take down in the class-room I copied it in.

Q. You were anxious to teach Chemistry afterwards? A. I was.

Q. And paid special attention to the subject? A. I did.

Q. And in these note-books all the notes of Mr. Kirkland's lectures are to be found? A. No. I have here, in another book, three notes in the margin in lead pencil, which were written in the class-room.

Q. In Roscoe? A. No.

Q. In Hart? A. Yes; I have three. (Hart's Elementary Chemistry put in and marked Exhibit R).

Q. On pages 192, 193, 194, 195, 196, 197 and 198 you have notes? A. I don't know the pages.

Q. You made those notes hurriedly in class? A. Mr. Kirkland gave questions. He was lecturing on White Lead, and I wrote opposite that; and I wrote this in class.

Q. We have your notes very complete, then. The notes in these books and in Hart's Chemistry carry us over the whole ground of Mr. Kirkland's lectures? A. All given in these were given by Mr. Kirkland, but there were other things mentioned. I wrote the head of which he mentioned, which I might not otherwise remember.

Q. All that you put down here you deemed specially important? A. I deemed specially important all that is in these books.

Q. Did he tell you to take special notice of what you put in those books? A. He did not.

Q. Did he ever point out to you that any part of his lectures was specially important? A. When he was lecturing on a subject he would take up the most important things first, and then give us the other things. But all was taken up.

Q. But he would sometimes point out the most important things? A. Any teacher in Chemistry would do that.

Q. Did he point out the most important things? A. Yes, in every subject which he taught.

Q. Look at your notes here. Do you see 2nd January and 7th March written there on the back of two note-books? A. Yes.

Q. When did you write that "7th March?" A. This morning.

Q. You wrote "2nd June" this morning? A. Yes, I did, that I might know in picking up my note-books to which to refer.

Q. Did you make any mistake? A. I should have said the 8th January.

Q. Why did you write "March 7th?" A. I came before that. I wrote that in class.

Q. How comes it that the date is written in ink, and the rest of the note in pencil? A. This is written in the same ink.

Q. Why was that written in ink and the rest in pencil? A. We had ink wells in our desks. Sometimes there was not sufficient ink, so when I wrote that note on ammonia in ink, I wrote in that date.

Q. Look at the note on mineral water in your notes? A. I have not got it written as mineral water, but I will turn it up as I have it.

Q. Read your note as to anything like this: test for a chloride of silver. Have you that? A. I have not.

Q. Have you anything like it? A. I have it in my note-book.

Q. In that note-book, do nearly all the notes refer to the same subjects as Miss Montgomery's notes? A. All the notes do not refer to those subjects. They include all those subjects, but they include a great deal more.

Q. Are all the subjects in Miss Montgomery's note-book in your notes? A. All, I believe.

Q. Have you notes on any other points than those treated in Miss Montgomery's notes? A. I have. I have notes which I received before Miss Montgomery came to the school.

Q. Never mind them. While Miss Moutgomery was at the school? A. I have the notes given first on the different metals, notes on oxygen, hydrogen; and I have the one question mentioned in her notes about the equivalency of metals. I had this before Christmas, which she stated was given after Christmas. And I have full notes on water, covering several pages,—on the atmosphere, on nitric acid, on nitreous acid; I have notes on ammonia, and notes on carbon. One page here I have written since I have been at St. Mary's. I have carbon-di-oxide, carbon-mon-oxide. I have marsh gas, olefrant gas, and coal gas; chlorine, hydrochloric acid. The preparation of different substances was written at different times. We obtained it at Mr. Kirkland's lectures; it is not here as he gave it. I turned down that. The next is the test for those mineral waters what we took in the laboratory: bromine, iodine, sulphur, sulphate-di-oxide, sulphuric acid; and this in pencil I wrote afterwards. I have phosphorus, syllicon, arsenic, potassium, caustic potash, gunpowder, sodium, sodium carbonate, calcium, calcium carbonate, and I have the compounds of each of these. I have iron, oxide of iron, maguesium. The next I wrote myself for a first year's paper for 1873; I wrote it out of one of those books. I have copper, lead, mercury, silver, and antimony.

Q. You have mercury marked in your Hart's Chemistry. Do you see that marked in Miss Montgomery's book? A. It is marked in both books.

Q. At page 251 in Miss Montgomery's book and page 194 in yours? A. Yes. In this book (Hart's Chemistry) I have marked "White lead. Test for white lead. Action on lead pipes. What are the sources of mercury? How is silver extracted from its ores"—the ores that were mentioned, lead, antimony and copper.

Q. You have silver. Look at page 247 in Miss Montgomery's book. Is silver marked there? A. It is marked. No; it is copper in hers.

Q. Is it not silver? A. Here is silver—on page 253.

Q. Is it marked? A. Yes.

Q. Is the copper marked? A. Yes.

Q. Is the copper in yours marked? A. Lead, antimony, copper and iron. How to extract it from these four.

Q. What is that? A. This is marked on silver, but it is marked all the way through from the beginning I think.

Q. You have read the course through which Mr. Kirkland took you, and you have read the Examination Paper in Chemistry? A. I wrote on it.

Q. You read it lately, this morning? A. I did not

Q. You read it yesterday? A. I had it in my hand part of the time, when Miss Montgomery was being examined.

Q. Look at the first question of the Chemistry paper in July 1876? You have all that in your notes? A. Under different subjects, but not given under one question.

Q. "Describe the properties of carbon which tend to show that diamond cannot have been formed at a temperature at which pure iron melts." You have all about the diamond? A. Not as you read it though.

Q. All about the subject? A. Not as you read it here.

Q. Could you have answered that question from your notes? A. I could.

Q. How would you show that carbonic acid (CO^2) is a compound of carbon and oxygen, and that it contains (very nearly) its own volume of oxygen?" You have all about that? A. I have it in the notes before Christmas?

Q. Before Miss Montgomery came? A. Yes, although I will not swear that it was not mentioned afterwards as they were taking lectures at a different hour from what we were in the laboratory.

Q. Then they would get more lectures which you would not get? A. It was supposed so.

Q. They would get lectures at which you would not be present? A. No lectures.

Q. Would they get instruction at which you would not be present? A. Experiments.

Q. Would they be instructed by Mr. Kirkland in Chemistry at a time when you were not present? A. Experiments would be given.

Q. How do you know what Mr. Kirkland did? A. That is all that was given in the class-room.

Q. You do not swear that no hints could have been given to Miss Montgomery, of which

you were not cognisant? A. Not in the class-room. What was given afterwards I don't know.

Q. In the laboratory? A. I was assistant to Mr. Kirkland in the laboratory, often after the school I was there preparing for the next day.

Q. Were you always there when Miss Montgomery was there? A. I cannot say.

Q. Are you aware that Miss Montgomery was not there until the beginning of 1876? A. Yes.

Q. Are you aware that she was absent frequently during the session on account of illness? A. Not from the Chemistry class, that I remember, as far as I have knowledge.

Q. Was she there every day? A. No; I will not say that. She was there most of the time.

Q. You were not aware she was ill most of the time? A. No; because we were kept from having conversation with the ladies.

Q. You wont swear that question No. 2 was not given at the latter part of the session? A. It was not given at the latter part of the session; but at the early part.

Q. Before Christmas? A. Yes; according to my notes.

Q. You said you would not be surprised if it was repeated? A. I did not. I say it might have been repeated, but I have no remembrance of it.

Q. "Question 3. Describe how you would prove bone-ash to consist chiefly of calcium phosphate. Explain the decomposition of bone-ash by diluted sulphuric acid. Explain by means of symbols the reaction which takes place when a solution of sodium carbonate is added to one of phosphoric acid." You have all about that? A. I have the test for all these. It is not written though as it is there.

Q. "Describe the leading properties of arsenic, and name those elements that are usually grouped with it. What means do we possess for the detection of small quantities of arsenic? Name the substance which is considered the best antidote against it? State how you would determine whether a given gas consists of arseniuretted or anti-moniuretted hydrogen." You have all about that? A. I have.

Q. "Question 5. Describe the preparation of potassium from potassium carbonate, and explain the process. State how you would distinguish potassium from sodium, and how detect each metal in its compound." You have all about that? A. I have.

Q. "Question 6. By what experiments would you prove that gunpowder is a mixture and not a compound? Explain fully how the substances of which it is composed act on each other during combustion. How do you explain the mechanical effects produced by the explosion of gunpowder?" You have all about that? A. I do not say that I have every part of that question; I have the greater part.

Q. "Question 7. How is metallic lead obtained from galena? A sample of water is supposed to contain a small quantity of a lead compound. Describe fully how you would examine the water for lead?" You have all about that? A. I have the test for lead.

Q. You have, in fact, all about lead? A. Yes; as given in my note-book.

Q. "Question 8:—How would you prepare pure silver from an alloy of silver and copper? Why is silver considered a monovalent metal? Enumerate the oxides of silver, and give a brief description of each of them? The ordinary silver coins are made of an alloy of silver and copper. How would you prove the presence of both these metals in a coin?" You have all about that? A. I would not swear I have it all written without looking at my note-book. We took the test for silver, copper and other metals.

Q. "Question 9:—State the composition per cent. of iron pyrites, epsom salts, calomel, and corrosive sublimate." You had all about those salts had you not? A. I could not swear all were there without looking at the note-book. I have iron pyrites, epsom salts, calomel and corrosive sublimate.

Q. "Question 10:—What weight of marble, when acted on by hydro-chloric acid, will yield a cubic foot of carbonic acid gas." Do you remember getting that question? A. I do not remember that question.

Q. Did you get a like question? A. I do not remember.

Q. Do you remember being asked to work out any question by the English and French methods? A. There are some in my notes.

Q. I ask you whether there are any other subjects treated of in your note-book except those dealt with in the Examination Paper? A. There are.

Q. How many? A. All the others that we have in our course.

Q. How many? A. I have not numbered them.

Q. Do you think there are five other subjects? Do you think there are three? A. I think there are more, but I could not tell the number.

Q. Are there three other subjects in your note-book, more than are treated of in that Examination Paper? A. I think so.

Q. If the questions that you had already taken notes of before Christmas had been repeated after Christmas—you, having previously taken a note of them, would not take a second note? A. I think not. I think if I had a note of anything I would not take a second note of it. Those that I stated were given before Christmas, I do not think were given afterwards.

Q. You were first asked about question 3—you say that was given in the last part of May or the first part of June? A. Yes.

Q. How long would that be before the examination? A. A month or six weeks before. Our examination began on 10th July I think.

Q. You say No. 4 was given before 7th March? A. Yes.

Q. You do not know whether that subject was again referred to. Mr. Kirkland, I suppose, like other lecturers at colleges and elsewhere, goes over and reviews the whole he has taught? A. He reviews by way of questions he asks, like those I have handed in—by means of handing us questions for us to answer at home.

Q. And I suppose he reviews in that way some weeks before the examination? A. During the whole of the session.

Q. A man cannot review until he has travelled over some ground. How far does he go before he reviews? A. I think we began to review after two or three weeks of the session were over. He began then giving us some papers in trigonometry.

Q. When did he begin to review on Chemistry? A. The first review paper I have was given before Christmas. I cannot say the exact date, but I think, as far as I remember, it would be some time about the last of October or beginning of November.

Q. When he began to review? A. That is when he had gone over hydrogen and oxygen. He gave us a paper on those two subjects.

Q. That is not what I mean by reviewing. I mean after he has gone over the whole of the course, does he not review? A. This was his method of review, as I understand.

Q. He, from time to time, handed you out papers to be answered? A. He did.

Q. Afterwards, in January, February, March, April, May, did he give you any questions? A. He did.

Q. In all those months? A. I would not say in every month.

Q. Did he give you more questions at the latter part of the session than at the beginning? A. The greater number of questions were given in the month of March and beginning of April.

Q. Were more given in April than in May? A. Yes.

Q. More in April than in June? A. None of those papers to my knowledge, were given after 22nd May.

Q. Were those papers written in his handwriting? A. Yes, as far as I know.

Q. Do you remember how many you got during the entire season? A. All I had I think were seven.

Q. In regard to the second question you said your note dates 7th March, but you would not swear that it was the only time arsenic was taken up. It might have been taken up afterwards? A. The subject was taken up before 7th March, and fully entered into. The subject of arsenic might have been mentioned afterwards.

Q. You swore that you could not swear it was the only time it was taken up? A. I would change the words "taken up" to "spoken of." I mean a lecture was not given on the subject of arsenic afterwards, it might have been mentioned in connection with others, as a compound, and with other substances.

Q. Will you swear it was not taken up after 7th March? A. To my knowledge it was not.

Q. You cannot say anything about it then? It might have been taken up, as far as

your knowledge goes, at a later period than March? A. I dont remember it being taken up afterwards.

Q. It might have been taken up after March, for all you know? A. Without looking over all my notes, I would not swear it was, or it was not.

Q. Could Mr. Kirkland have given Miss Montgomery and the ladies who attended with her the slips of paper or question without your knowledge? A. He could.

Q. You tell us that question 2 was given on 7th March? A. I don't know that I said on 7th March, before 7th March.

Q. You told Mr. Kirkland that something was said about the same subject at the end of May or in June. Do you remember what was said about it? A. Before 7th March.

Q. But it may have been taken up in June, for all you know? A. No.

Q. It could not have been taken up in June, without your knowledge. A. I have no knowledge of it being taken up in June.

Q. Could Mr. Kirkland have given one of those slips of paper to Miss Montgomery or give a question to her without your knowledge? A. If he did it out of class.

Q. In the Laboratory? A. I was not always in the Laboratory. I was at the lecture we had.

Q. You say that question 5 was given before 22nd May. Is that so? A. It was.

Q. Was it discussed afterwards in the class? A. No.

Q. It was never reviewed when Mr. Kirkland reviewed these questions four weeks before the examination? A. No.

Q. You say question 6 was given before the examination—when? A. Before 22nd May.

Q. Question 7 about 1st June? A. Yes.

Q. And question 8 before the vacation? A. That is the second part of question 8.

Q. You say you thought you could answer all the questions from the notes you got from Mr. Kirkland? A. I expected to do so.

Q. From the notes you got from him? A. That is from the notes I had on Chemistry.

Q. Was there any conversation amongst your fellow students as to whether those notes did not aim at that Examination Paper you were to get? A. There was not.

Q. You never heard a syllable of such conversation regarding the grounds you had to expect certain questions on the Examination Paper, that would tally with the notes you got from Mr. Kirkland? A. I never did.

Q. You swear that? A. I do.

Q. In or out of the Normal School? A. I did not in or out of the Normal School. I never heard any one say there would be certain things on the Examination Paper, or that they expected it.

Q. In or out of the Normal School, did you ever hear any fellow student or otherwise, say: we might expect the same questions in the Examination Papers as Mr. Kirkland lectured on?" A. On the same subjects that were lectured on?

Q. Yes. A. We all expected that.

By the Commissioner.

Q. Was the talk among students that such things might be expected? A. It was not.

By Mr. Davin.

Q. Did you know Mr. Slater when he was here? A. I did.

Q. I believe he was here only part of the session? A. Only a part.

Q. Were you at Mr. Kirkland's last night? A. I was.

Q. Was this subject discussed there? A. Not with me. I wrote it out this morning—I wrote out my evidence since I have been here.

Q. Was anything said about this inquiry last night? A. There was.

Q. Were you asked what evidence you would give? A. I had written this before, and that was my evidence; so I was not asked what evidence I would give.

By Mr. Kirkland.

Q. You stated that you believed you had knowledge enough in your notes to answer all the questions. Do you mean the notes, lectures and all you had learned in Chemistry? A. I mean with all I knew of Chemistry, I supposed I would be able to answer the paper on Chemistry. I don't mean to answer all in the paper, but that I would be able to pass the paper, and make all that was required for a first A.

Q. Mr. Davin asks you if two, three, four or five subjects were in your notes which are not referred to in this Examination Paper? A. There are.

Q. Take your notes and see. Have you any note on oxygen? A. I have.

Q. On hydrogen? A. I have.

Q. On the general impurities of water? A. I have.

Q. There are none of those on this Examination Paper? A. None that I know of.

Q. The atmosphere. Is there anything on that in this paper? A. No; I have that in my notes.

Q. Is there anything in this paper on nitrogen? A. No.

Q. You have full notes of that? A. I have notes.

Q. Have you anything on nitric acid? A. I have full notes.

Q. It is not referred to in this paper? A. No.

Q. Have you anything on nitrous oxide? A. I have.

Q. Is it referred to in this paper? A. I don't find it.

Q. It is not in the paper? A. No.

Q. Have you notes on other compounds—on nitrogen? A. I have on nitric acid and on ammonia.

Q. Is there anything of ammonia on this paper? A. No.

Q. What is the next subject you have? A. Carbon.

Q. That is mentioned? A. Yes.

Q. Have you carbon monoxide? A. I have.

Q. Is that mentioned on this paper? A. No.

Q. What is the next subject you have in your notes? A. I have some on both marsh gas and olefiant gas.

Q. Is there anything in the paper on these? A. No.

Q. What is the next? A. Coal gas.

Q. Is that mentioned here? A. No.

Q. What is the next subject? A. Chlorine.

Q. Is that mentioned in this paper? A. One of the compounds of it is mentioned—chlorides.

Q. What is the next? A. Hydrochloric acid.

Q. That is mentioned here? A. Yes, in the last question.

Q. What is the next point? A. The next I have is the tests for chlorine, iodine and bromine; and then I have bromine and iodine next.

Q. What is next? A. Silver.

Q. Is that mentioned on this paper? A. No.

Q. What is next? A. Silver-di-oxide.

Q. Is that mentioned here? A. No.

Q. What is the next? A. Sulphuric acid.

Q. Is it mentioned? A. No.

Q. Next? A. Phosphorus.

Q. That is mentioned? A. Yes.

Q. What is next? A. Silicon.

Q. Is that mentioned here? A. No.

Q. The next? A. Arsenic.

Q. Is it mentioned here? A. Yes.

Q. The next? A. Different compounds of arsenic.

Q. Next? A. Potassium.

Q. Is it mentioned? A. Yes.

Q. These subjects are treated of fully—are they? A. Yes.

Q. The next? A. Caustic potash.

Q. Is it mentioned here? A. No.
Q. The next? A. Potassium carbonate.
Q. Is it mentioned here? A. It is.
Q. The next? A. Potassium nitrate.
Q. The next? A. Gunpowder.
Q. The next? A. Sodium.
Q. Is that mentioned here? A. Indirectly, as a solution of sodium carbonate. I have also sodium carbonate.
Q. Is that mentioned? A. Yes, in question 3.
Q. The next? A. Calcium.
Q. The next? A. Calcium carbonate.
Q. Calcium is not mentioned in this paper—is it? A. One of the compounds is given in question 3—calcium phosphate.
Q. You have not calcium phosphate at all—have you? A. I have it mentioned in this way; "Bone consists of five-sixths of calcium phosphate and one-sixth of carbonate of lime."
Q. Calcium is not mentioned on the paper as a subject? A. No.
Q. The next? A. Iron.
Q. Is it mentioned on the paper? A. Not as a subject, but as a compound of iron pyrites.
Q. What else have you? A. The compounds of iron.
Q. Name them? A. Ferrous carbonate.
Q. Is it mentioned here? A. No.
Q. The next? A. The oxides of iron—Fe2 O3, Fe3 O4, and H2 FeO4.
Q. How many are there? A. Four.
Q. Are any of these mentioned on this paper? A. No.
Q. The next? A. Ferrous sulphate.
Q. Is that mentioned on the paper? A. No.
Q. The next? A. Magnesium.
Q. Is that mentioned on the paper? A. No.
Q. Next? A. Copper.
Q. Is that mentioned on the paper? A. It is mentioned with silver, as an alloy of copper and silver.
Q. Next? A. Lead—it is mentioned.
Q. Next? A. Mercury. Silver is the next, and then antimony.
Q. Is antimony mentioned in the paper? A. Indirectly, as antiniuretted nitrogen.
Q. The next? A. I have in the other book the sources of mercury. Then I have gold and platinum marked in my books.
Q. Are either of these mentioned in this paper? A. I don't find them.
Q. Have you anything else? A. No.
Q. In addition, were there not subjects treated of in the laboratory, in the way of tests and practical work? A. There were.
Q. Of which no notes were taken? A. Yes.
Q. That does not represent the whole of the actual work done by the students? A. Not all. It represents the class-room work.
Q. Then you swear positively, that from your knowledge—comparing the questions, talking with students, or in any other way—it is your opinion I had no knowledge of the questions, directly or indirectly? A. I swear positively that, in my opinion, you had no knowledge. From all I had in my notes, or heard from fellow-students, you had no knowledge of what was to be in the Examination Paper.

By Mr. Davin.

Q. You have read Miss Montgomery's notes? A. Yes; I saw them this morning.

HENRY H. CROFT, sworn :—

BY MR. DAVIN.

Q. You are a professor of Toronto University? A. Yes.

Q. In what subjects? A. Chemistry and Experimental Philosophy.

Q. Would you look at the July Examination Paper for 1874, for first-class Provincial certificates. Look at the first question on the Physics Paper. A. "Ques. 1.—How would you cool a mixture in the absence of ice or snow? Give the theory of your process."

Q. Now take Brown's note-book. Look at page 87, question 6. A. "How would you cool a mixture without either ice or snow? Explain clearly the principle involved."

Q. Read question 2 on the paper. A. "Ques. 2.—Describe the relation of the heat *spectrum* to the light *spectrum*."

Q. Look at page 87, question 7, in the note book? A. "Compare the heat *spectrum* and the light *spectrum*."

Q. Look at question 3 in the Examination Paper? A. "What is the 'thermal unit' generally adopted? A pound of mercury, at a temperature 102° C. is immersed in a pound of water, at 40° C. how many degrees will the temperature of the water be raised, taking the specific heat of mercury at .03?"

Q. Look at the note book, page 86, question 3? A. "How is heat measured? What is the thermal unit usually adopted? What do you mean by the mechanical equivalent of heat?"

Q. And look at question 4, on the same page? A. "What do you mean by specific heat? A pound of mercury at 100° is immersed in a pound of H2 O at 40°. How many degrees will the temperature of H2 O be raised, the s. heat of Hg being 1-30?"

Q. Look at question 6 in the Examination Paper? A. "Explain by a diagram the compound microscope."

Q. Look at question 10, page 88, in the book? A. "Describe the common microscope."

Q. Look at question 7, in the Examination Paper? A. "Describe an experiment to illustrate electrical induction. What is the phenomenon known as the 'return shock?' Explain it."

Q. Look at question 5, page 89, in the book? A. "What is meant by electrical induction."

Q. Look at question 7? A. "What is meant in treatises on electricity by the return shock?"

Q. Look at question 8 in the paper? A. "If the point of a fine needle in metallic connection with the prime conductor of an electrical machine in action, be brought near a candle, the light will probably be extinguished. Explain clearly the cause of this."

Q. Look at question 9 in the note book, page 90? A. "If a point is brought near the prime conductor of an electric machine what effect is produced?"

Q. Look at question 10, same page? A. "If a lighted candle be brought near the point what is the effect and what is its cause?"

Q. Look at question 9 in the Examination Paper? A. "Describe in general terms a magneto-electric machine."

Q. Look at question 15, page 91 of the book? A. "Describe the magneto-electric machine and the principle on which it acts?"

Q. I ask you, as an expert, whether there must not have been collusion between the examiner and the teachers who gave out those questions?

The Commissioner.—How is that the opinion of an expert?

Mr. Davin, to Witness.—What is your opinion about the similarity between those papers?

The Commissioner.—Are they similar?

Witness.—They are remarkably similar.

By Mr. Davin.

Q. You have a large experience in Examination Papers? A. Yes.

Q. As a man having a large experience in Examination Papers. a Professor at the University, and this being your subject, do you think it likely that there could have been such a coincidence as the Examiner giving those questions unless he had known the questions which were given to the pupils? A. I simply do not.

Q. You don't think it is possible? A. No.

Q. I will ask you to look at the Chemistry Examination Paper for July, 1874. Look at question 3. A. "Question 3.—How may an aqueous solution of ammonia be formed from chloride of ammonia? Describe the process and represent the chemical actions by means of an equation."

Q. Look at Brown's note-book, page 66, question 6? A. "How is ammonia obtained? Give the derivation of the name and express the reaction by an equation. What are its properties? How would you detect the presence of ammonia, 1. Pure. 2. In combination with some other substance?"

Q. Look at question 4 in the Examination Paper? A. "How is carbonic acid made? Give the equations representing the re-action. Describe fully what takes place when a stream of carbonic acid gas is passed into lime water into saturation; also, what occurs when the liquid so produced is boiled. How would you prove that carbonic acid really consists of carbon and oxygen in the proportion stated in the formula."

Q. Look at question 7 on the first page of Brown's book? A. "How would you detect the presence of a carbonate? What takes place when C O 2 is passed into lime water to saturation?"

Q. Are these questions similar? A. They are singularly similar. They are on the same subject.

Q. That is question 4 on the paper, and question 7 in Brown's note-book? A. They are on the same subject.

Q. In regard to the first question I asked you—question 3 in the Examination Paper, and question 6, page 66, in Brown's note-book—what is your opinion of the similarity of those? A. They are only on the same subject.

Q. Look at question 5 in the Examination Paper. A. "Ques. 5.—Describe the manufacture of sulphuric acid. A vitriol maker prepares ten tons of vitriol of specific 1·4, containing 80 per cent. of acid. How many tons of pyrites containing 40 per cent. of sulphur must for this purpose be burnt? Suppose 5 per cent. of the theoretical yield of sulphur remained unburnt in the pyrites, what would be the difference in the production of the sulphuric acid?"

Q. Look at Brown's note-book, question 8, page 69. A. "How is H2 SO4 manufactured? Explain the re-action by an equation. What are its properties and uses? and explain fully how you would detect its presence in any form in a solution."

Q. Are these on the same subject? A. They are only on the same subject.

Q. Look at question 6 in the Examination Paper. A. Ques. 6.—"A few grains of white arsenic are put into an ounce or two of soup. State as fully as you can how you would proceed to detect its presence there."

Q. Look at question 11, page 71, of Brown's note-book. A. "Describe minutely Marsh's test for arsenic, and state all the precautions necessary in making the experiment." That is on the same subject.

Q. Look at question 7 in the Examination Paper. A. "Ques. 7.—What are the sources of iodine? How is it prepared? Describe the properties of iodine? How would you proceed to detect the presence of a soluble (a) chloride, (b) iodide, (c) fluoride, present single in a liquid?"

Q. Look at the note-book, question 4, page 76. A. "State generally how iodide may be obtained, and how it may be detected in any compound."

Q. Are these the same? A. Part of the question is on the same subject.

Q. Look at question 8. A. "Ques. 8.—Classify the common metals according to their equivalency. Give the formula of the characteristic oxide, chloride and sulphide of each."

Q. Look at questions 6 and 7, pages 78 and 79, of the note-book. A. "Classify the

common metals according to their equivalency." "Give the formula of the most characteristic oxide and sulphate of potassium, iron and copper."

Q. Are these questions the same? A. The questions are rather different.

Q. Are they on the same subject? A. Yes.

Q. Look at question 9 in the Examination Paper. A. "Ques. 9.—What is the most important ore of tin, and how is the metal extracted therefrom? How is the presence of tin in a solution detected?"

Q. Look at question 9, page 81, of the note-book. A. "How is tin obtained? How would you test the presence of a compound of tin in any solution?" That is the same—very nearly—as near as possible.

Q. What inference would you draw from the similarity? A. In my own mind, I must say, I would imagine they were all derived from the same source. Whether that was a book, or what it was, I cannot say.

Q. Turn to the June Paper for 1874—the first question. A. "Ques. 1—What is ozone? How is it prepared, and what are the physical and chemical differences between it and oxygen?"

Q. Look at question 2, page 63, of the note-book. A. "What is ozone? How is it obtained, and what are its properties?" These are on the same subject exactly.

Q. What would be your inference from seeing that one in the Examination Paper, and the one in the question given by the teacher? A. If any question is asked on ozone by a teacher or examiner, I do not see well how he could put it in any other form than this.

Q. They are both practically the same question? A. Quite so.

Q. Look at No. 2.—A. "Ques. 2—You have given a few iron nails, some pure tin-foil, copper filings, and a little granulated zinc, with concentrated nitric acid and distilled water; state what chemical changes you can produce with these materials, and express the changes by equations."

Q. Look at Brown's note-book, question 57 page 65. A. "How is commercial nitric acid obtained? How would you detect the presence of a nitrate?"

Q. Does that question cover the same ground as question 2 in the paper? A. No, they are quite different.

Q. Look at question 3 in the Examination Paper. A. "Ques. 3.—How would you obtain evidence of the presence of ammonia, whether pure or combined, in a given solution?"

Q. Turn to the note-book, question 6, page 66. A. "How is ammonia obtained? Give the derivation and express the re-action by an equation. What are its properties? How would you detect the presence of ammonia, (1) pure, (2) in combination with some other substance?" They are on the same subject.

Q. Look at question 4 in the Examination Paper. A. "Ques. 4.—We inhale air and throw off carbonic acid from our lungs. How would you show experimentally that the amount of CO_2 in a given volume of air which comes from our lungs is far greater than the quantity of carbonic acid, which is found in an equal volume of air which we inhale?"

Q. Look at question 7, page 68, of Brown's note-book. A. "How would you detect the presence of a carbonate? What takes place when CO_2 is passed into lime water to saturation?"

Q. And look at question 2, page 74. A. "If a vessel contained a mixture of N and CO_2, how would you proceed to measure the N and how to weigh the quantity of CO_2? If you wanted to determine the volume of CO_2, how would you do it?"

Q. Do the two questions cover the same ground as question 4 in the Examination Paper? A. Yes, as nearly as possible.

Q. Look at question 5 in the Examination paper. A. "Ques. 5.—Describe the process for the manufacture of sulphuric acid, with an explanation of the re-actions. Describe and explain the re-action by which you would identify it."

Q. Look at question 8 in Brown's note-book, page 69. A. "How is H_2SO_4 manufactured? Explain the re-action by an equation. What are its properties and uses, and explain fully how you would detect its presence in any form in a solution?"

Q. Are these questions the same? A. They are the same.

Q. What would be your inference from looking at these questions, one given by the

teacher and the other by the examiner? A. Two teachers might give a question on the same subject and use very nearly the same words—they might.

Q. Go on to question 6? A. "Ques. 6.—A specimen of spring water is supposed to contain sulphuretted hydrogen. How would you ascertain whether sulphuretted hydrogen is really present!"

Q. Look at question 3, page 64, of the note-book? A. What are the usual impurities of spring water? How are they detected, and how are they removed?"

Q. Do these cover the same ground? A. No.

Q. What is the difference? A. In the one case you are asked the test for sulphuretted hydrogen, and in the other case you are asked about the impurities of water. Sulphuretted hydrogen is an impurity of water, but it is not mentioned in the note-book.

Q. If you went thoroughly into an examination of the impurities of water, would you be able to answer the question? A. Yes.

By the Commissioner.

Q. The usual impurities? A. Well, it is not a usual impurity.

By Mr. Davin.

Q. If you went into the usual impurities would you not have to go into the unusual impurities too, to get the contrast? A. I do not see that.

Q. Look at question 7 in the Examination Paper? A. "Ques. 7.—By what experiment would you prove that common phosphorus and red or amorphous phosphorus are allotropic modifications of the element phosphorus?"

Q. Look at question 1, page 73, in the note-book? A. State in general terms how phosphorus is prepared? What two forms does it occur in, and show that these two forms are virtually the same? The questions are the same as nearly as possible.

Q. What would be your inference in regard to the similarity in those two questions? A. Again I say two teachers might put their questions in exactly the same words—as nearly as possible.

Q. But, as an examiner, would it surprise you to have this similarity running through the entire paper? A. It would.

Q. Look at question 8 in the Examination Paper? A. "Ques. 8.—Describe Marsh's test for arsenic, with its modifications and fallacies."

Q. Look at question 11, page 71, of the note-book? A. "Describe minutely Marsh's test for arsenic, and state all the precautions necessary in making the experiment." It is the same question.

Q. Look at question 9? A. "Ques. 9.—State the composition of the ordinary ores of iron, the chemical principles involved in the reduction, and the composition of cast iron and steel. How would you distinguish iron from copper chemically?"

Q. Look at question 7, page 79, of the note-book? A. "Give the formula for the most characteristic oxide and sulphate of potassium, iron, and copper." There is no connection between these at all. There is only iron mentioned, and that incidently; otherwise the questions are not at all the same.

Q. Look at question 10? A. "Ques. 10.—How would you treat a silver coin containing a small quantity of gold, in order to extract the latter metal from it?"

Q. Look at question 10, page 82, of the note-book? A. "You have a mixture containing silver and potassium, how would you separate them?"

Q. Look also at question 8, page 80, of the note-book? A. "How is silver obtained, and state the principles involved?"

Q. Do the two questions in the note-book cover the same ground as the question in the Examination Paper? A. I cannot say that there is any connection between those questions, except that silver is mentioned. It is quite a different question.

Q. Do they cover the same ground? A. No.

Q. If a student got up the two questions in the note-book, would he be able to answer question 10 on the paper? A. No.

Q. Look at question 11 on the paper? A. "Ques. 11.—100 cubic centimetres of am-

monia gas are completely decomposed by a series of electric sparks, yielding 200 centimetres of mixed hydrogen and nitrogen ; an excess of oxygen is next added, when the volume mixed gases is found to amount to 290 centimetres ; the mixture is now exploded, when 65 cubic centimetres of gas remain. Show from these data that the symbol of ammonia is NH3."

Q. Look at question 11, page 83, in the note-book ? A. 100 cubic centimetres of N H3. are completely decomposed by a series of electric sparks, yielding 200 cubic centimetres of mixed H and N ; an excess of O is next added, when the volume of mixed gases is found to amount to 290 cc. The mixture is now exploded, when 65 cc. of gas remains. Calculate from the data the composition of NH3."

Q. Is that word for word what is in the paper ? A. Excepting just what is at the end. Mr. Brown, writing down NH3., gives you the composition, while the examiner has written quite properly. "Show from the data that the symbol is NH3."

Q. With the exception of the blunder in the question given out, there is no difference ? A. No difference.

Q. You see the proportion of questions in these two papers which are alike—some identical, some covering the same ground. Looking at that what is your inference as to the sources from which the examiner and teacher drew their knowledge. In regard to these questions on Chemistry generally—you see how many questions there are—you say some are identical and some going over the same ground. As an experienced examiner, a University man, and an expert in these subjects, what is your inference as to the relation in regard to the sources of knowledge between the examiner and teacher ? A. You must bear in mind that different teachers teach the subjects of Chemistry in different ways, and they have to study particular subjects. They have to ask pretty much the same questions, because certain subjects are of more importance than others, and on many of those questions they are put so that any person might ask the question. But there are some in which the agreement is so remarkable that I can only imagine they must have been drawn from the same source. For instance, that last question. If it was not taken from a book, I don't know where it came from.

By Mr. Kirkland.

Q. Reading it over, you believe no two persons could set that question without it being taken from a common source ; no two could set it independently ? A. Unless they had learnt it by heart.

Q. Is there any other question in the paper in the same position as that one ? A. No.

Q. There is no other unusual question ? A. No other that is so striking as that to me.

Q. Do you see any other question that you think would call for explanation on the remark and style of asking ? A. I do not see any other question that calls for particular notice in this paper.

Q. The questions asked are the usual questions asked in Chemistry ? A. They are.

Q. A person giving out the usual questions in Chemistry, commencing with oxigens and going over the non-metalic elements would not leave out any in that paper ? A. He would not be justified in leaving out any of them that are the subjects of the questions.

Q. All would have to be given ? A. They ought to be.

Q. In the second paper, did you notice any question in the paper for July, 1874, that requires explanation as to the wording or otherwise, in reference to the correspondence ? A. There is a correspondence all through.

Q. On the subject ? A. And in the questions.

Q. The questions are not asked in the same words ? A. Very much so.

Q. The first two questions are not asked at all ? A. I have No. 3 ; that is not quite in the same terms.

Q. What is the question in the note-book which corresponds with No. 3 ? A. The questions are not put in the same words, but the subjects are exactly the same.

Q. There is sufficient for two persons to ask the question and yet there be no collusion ; there is nothing common but the subject ? A. No, I do not suppose there is any reason to infer collusion from that.

Q. There is no evidence of collusion in that case? A. No, nothing apparent.
Q. No. 5? A. There is nothing in that.
Q. No. 6? A. There is nothing in that.
Q. No. 7? A. I don't think there is anything in that.
Q. No. 8? A. No. 8 is exactly the same, word for word.
Q. The second part of it? A. I think they are very much the same. I would imagine that is a mistake in copying down.

By the Commissioner.

Q. In the Examination Paper? A. In Mr. Brown's notes there is such a similarity down to sulphate. They are worded the same. I do not mean to say that two persons might not have hit upon the two questions.
Q. Do you mean that Brown ought to have written it differently, or that it should have been given differently? A. I mean that Brown ought to have written it differently.
Q. The question is whether they are alike as you have them? A. They are alike down to that sulphate.

By Mr. Kirkland.

Q. You would not think they were alike if you asked for the common metals and you were given potassium? A. Certainly not.
Q. The questions are not the same? A. The first part is.
Q. And that is the usual question? A. Yes.
Q. Do you consider that any evidence of collusion? A. I say two persons might very easily ask that question in the same words.
Q. No. 9, "the most important ore of tin"—what is the note corresponding to that? A. The two questions are identical.
Q. Do you see any questions in that paper which would require any explanation that the two examiners might not ask, and yet act perfectly independently of each other? A. Of course, they might ask the same questions.
Q. Is there any question on that paper that a person giving a series of questions would not include; that is a series of questions in Elementary Chemistry, leaving out those that are not the same? A. They are very good questions.
Q. Are they common questions? A. Common questions. I do not mean to say that I would write a paper with all those questions in it, not leaving some out. They are quite proper questions to ask.
Q. If you were giving your students a series of questions, 20, 30, or 40 questions, your first year students, to embrace the leading points in Chemistry, do you see any question there that you would leave out? A. No.
Q. Then there is nothing unusual about any of them? A. Nothing unusual.
Q. Take the Physics paper. A. The first question about cooling a mixture is indentical? A. Yes.
Q. The second one about the heat and light spectrum? A. It is a common question.
Q. Is there anything unusual about No. 3? A. There is nothing unusual, but it is very remarkable they are so much alike.
Q. They are probably taken from the same source? A. They must be.
Q. Question No. 6. "Explain by a diagram the compound microscope?" A. There is very little connection there.
Q. Is there anything unusual in question 7? A. Not except in the bringing forward of the return shock as an instance of induced electricity. It is rather an out of the way question.
Q. Have you ever seen it asked before? Not in that way.
Q. But the "return shock" itself is not unusual? A. Of course the question on the "return shock" is a common one.
Q. Is there anything unusual about question No. 8? A. Nothing unusual except in the remarkable fact of the lighted candle being in both questions.
Q. Is not that a common experiment in Electricity? A. Quite so.
Q. Then an examiner would be very likely to ask it? A. He might.

Q. It is an ordinary experiment? A. Yes.

Q. The ninth question? A. There is nothing in that.

Q. Read the notes in the note-book? A. I have no doubt it is a note-book of consecutive lectures in Elementary Chemistry. That seems to be simply a course of lectures in Chemistry, as far as I could see, on consecutive subjects. Not a very extensive course.

Q. They are questions on the leading non-metallic elements, omitting all unusual compounds, and on the very common metals. That is our course, and they are a series of questions supposed to cover our course? A. Those are not the notes taken down during the lectures, I presume.

Q. Then, in regard to the Physics Paper for July, 1874,—do you see anything unusual about any of the questions asked? A. I do not see anything unusual in No. 9.

Q. That may be included in a series of questions. An examiner might set a paper embracing all those points in a very narrow course? A. An examiner might set a number of questions which might embrace those.

Q. In a comparatively narrow course? A. Yes.

Q. The thing is quite possible? A. Yes, it is possible.

Q. In what respect do you think it shows collusion? A. I do not say it does, but I say there is a very remarkable similarity between the questions.

Q. You think there is nothing in it to show collusion? A. I do not say anything about collusion.

Q. All that you say is, that there is a remarkable similarity between the paper and the questions? A. Yes.

CHARLES A. BARNES, sworn :—

BY MR. KIRKLAND.

Q. You attended the Normal School during the session ending June, 1874? A. I did.

Q. Mr. Brown was your fellow student? A. He was.

Q. How long have you been a teacher? A. About ten years.

Q. You hold a first-class certificate of the highest grade? A. I do.

Q. Are you a Public School Inspector for the County of Lambton? A. I am, for the Eastern Division.

Q. Do you recollect the examination of 1874? A. I do.

Q. Do you recollect anything unusual happening when the Examination Papers were given out? A. Nothing whatever.

Q. You did not see any students smiling or looking at each other? A. I did not.

Q. Do you recollect any questions given out during that session—any series of questions? A. I recollect a large number of questions being given, but I could not definitely repeat any of them.

Q. In any questions you have ever heard or received, do you recollect anything, either in manner or in any other way, that would indicate to you that those questions were likely to be of more importance than appeared on the face of them? A. No, I do not.

Q. Neither in emphasis, tone, nor in any other way? A. Not in any way whatever.

Q. Nothing that would indicate to you that those questions might appear in substance in the Examination Paper? A. Not at all.

Q. You have heard me give out a large number of questions? A. I have.

Q. Do you recollect my ever stating that you were to get at the answers to those questions? A. I do not.

Q. When I gave out series of questions from time to time, what did you understand the object of those questions to be? A. I understood that in giving out those questions they were to be merely a guide for our reading; that we should read with an object in view.

Q. It was never understood by you, or, as far as you know, by any of the students,

that they were just to get up those questions and nothing more? A. I never understood it so, or heard it stated so.

Q. After the examination of 1874, the students, I suppose, talked freely over the examination in the waiting-rooms and in their boarding-houses? A. They did.

Q. Did any one suggest that the questions bore a striking similarity or any similarity? A. Not to the best of my knowledge.

Q. Did it strike yourself? A. It did not.

Q. You boarded in the same house with Brown? A. I did.

Q. Did Brown, in your hearing, mention that the questions were at all similar? A. Not that I remember.

Q. The subject was not mentioned in your boarding-house at all? A. Not as far as any similarity was concerned, that I remember. We talked over the Examination Papers and questions; that was all.

Q. I want to know if any of them remarked that the questions were very similar to any they had got during the session? A. I am not aware of it; I do not recollect it.

Q. Was there any particular attention during the lectures paid to points which afterwards occurred in the examination papers? A. I did not notice any special attention more than was paid to any other points just as important.

Q. Give me an instance of what you mean by important points—oxygen, hydrogen, water, atmosphere, nitric acid, and such as that? A. Yes. I would consider all those important.

Q. To these subjects and subjects of that kind there was just as much attention paid as to those which occurred in the Examination Paper? A. Just as much.

Q. From all the knowledge you had of the students in 1874, or in any other way, do you know anything which would lead you to infer that there was any collusion between me and any of the examiners for that year? A. I do not.

Q. You positively swear that? A. Yes.

By Mr. Davin.

Q. You say that to the best of your knowledge there was no talk of the similarity between the Examination Papers and the questions given by Mr. Kirkland? A. I do.

Q. You heard Brown's questions read out? A. A large number of them.

Q. Were those questions given to you? A. I think some of them were. If not the same, they were very similar.

Q. Were they given on slips of paper? A. They were not. They were given on a large sheet of foolscap for us to copy.

Q. You took them and copied them? A. Yes, in the waiting room.

Q. You have no doubt these questions of Brown's are the same as those you copied? A. I think they are the same.

Q. You say you boarded in the same house with Brown? A. Yes.

Q. There were several students there? A. Four or five.

Q. You say that you do not remember that Brown mentioned that the Examination Papers were similar to the questions? A. Yes.

Q. Did any of the other students speak of it? A. None that I know of.

Q. Not a person that you knew here spoke of the similarity? A. Not one.

Q. In giving out those questions, which you find in Brown's book, and which you say you got, did Mr. Kirkland emphasize them in any special way? A. No.

Q. He did not emphasize any questions in any special way? A. Not that I am aware of.

Q. He did not point out that any special subjects were more important than others? A. He pointed out in Chemistry that some parts were more important than others.

Q. Did he do that when he gave out the questions? A. I cannot say that; but when he was lecturing on a subject he gave us to understand that certain non-metallic elements were more important than others.

Q. The subjects in which he gave you questions were, I suppose, naturally the most important parts of the whole subject? A. I think they were.

Q. And in giving you those questions he would impress on you that it was impor-

tant to get them up? A. I don't know that he did impress it in that way more than by his general lectures.

Q. Did you not hear him say when he gave out a list of questions that, if those questions were got up, they would cover the whole ground? A. I did not; not at least as far as my recollection will carry me now.

Q. He might have said it and you not recollect it? A. It is possible he might.

Q. When did you come here? A. On Tuesday night at 7 o'clock.

Q. Did you see Mr. Kirkland after you came? A. I did.

Q. And you had a conversation on the testimony you would give here to-day? A. Yes, I had a conversation with him.

Q. You say that nothing that would indicate that the questions would appear in substance in the Examination Papers, occurred; but you cannot say that he did not say to the students, "If you go over these questions, it will cover the whole grouud." How can you swear that nothing that would indicate that those questions would appear in the Examination Papers, occurred? A. I stated that to the best of my belief.

Q. But Brown and others may have been struck by the emphasis laid on papers,—may they not? A. It is possible they might.

Q. You say you know what Mr. Kirkland's object was in giving these questions? When did he give the last batch of questions,—in May or June? A. I cannot say. I don't think any were given in June, because I think the examination came off on the 15th June.

Q. Were they given in May? A. I don't know.

Q. In April? A. I suppose in both those months; but I am not prepared to swear they were.

Q. Was not the last batch of questions given with this rider added, "Get up these, and I will guarantee they will carry you over the examination?" A. It was not.

Q. It might have been said without you hearing it? A. It might to a private student, but it could not have been in the class-room, for I was sitting in the front row.

Q. Did you go into the same examination as Brown? A. I did.

Q. Were you struck with the extreme similarity of the papers? A. I don't think there was any more similarity between the papers than ought to exist between the teaching of a teacher who understands his subject aud the Examiner who examines on it.

Q. You saw the similarity? A. There is undoubtedly a similarity between Mr. Kirkland's teaching and the Examination questions.

Q. But between the last batch of questions and the Examination Papers? A. I did not say that; but I did not consider there was any more similarity than should exist between the teaching of an individual who understands his business and a fair Examination Paper.

Q. You saw the similarity? A. I did not see any more thau should exist.

Q. When you went out of the Examination Hall, did anything occur? Was anything said about the similarity? A. Nothing that I am aware of.

Q. Nor that night at your lodging house? A. Not that I am aware of.

Q. Not a word? A. Not one word.

Q. How long were you at the Normal School? A. I was there in June, 1874, and back the next session; and the last half of the session ending June, 1876.

Q. During the time you were at the Normal School, did you ever hear any gossip about this matter? A. I did not; I have heard idle talk about it; I cauuot swear positively. Not after the examination was over.

Q. Before? A. I could not have heard it before.

Q. When did you hear it? A. I may have heard it during the following session.

Q. When? A. The last session of 1874.

Q. Were you here in 1875? A. No.

Q. You may have heard it? A. I may have heard gossip in regard to the examinations.

Q. Before the June examination? A. No. There are two sessions in the year.

Q. When does the session commence? A. In August.

Q. You heard idle talk? A. I say I might have.

Q. Did you hear it? A. I don't know.

Q. What is the distinction you make? A. I may have heard it.

Q. Will you say you did not hear it? A. I will not, and I will not say I did hear it.

Q. That was more recent than what occured at the examination, and so you would remember what was said. A. I don't see why I should.

Q. Do you remember? A. I do not.

Q. You heard the idle talk? A. I may have.

By Dr. McLellan.

Q. You were at the Normal School in 1874? A. Yes.

Q. Perhaps you remember there was a letter which appeared in the "Mail" from an anonymous correspondent making an onslaught on me. Do you remember that letter? A. I do not.

Hugh A. Jameson, sworn:—

By Mr. Kirkland.

Q. You attended the Normal School in 1874? A. I did.

Q. You were present at the examination in June of that year? A. I was.

Q. Did you observe anything during the session which would lead you to infer that I had a knowledge of the final Examination Papers? A. I did not.

Q. Did you know Mr. W. G. Brown? A. I did.

Q. Did you board in the same house with him? A. Yes.

Q. Did you often talk with him? A. Frequently.

Q. Did you talk with him after the examination? A. Yes.

Q. Did he express any opinion then that the Examination Papers were very similar to the questions you had been asked during the session? A. He did not.

Q. Did anybody else as far as you recollect? A. I have a recollection of there being some talk, stating that the questions were similar—that some of the questions were similar.

Q. From what you know of students and the way they talk to each other, would Brown have spoken about it if he had noticed it, do you think? A. I think he would. If a student is of a communicative character, he certainly would.

Q. He did not? A. He did not.

Q. From all you saw during that session, and all you learned, you saw nothing that would induce you to think I had any knowledge of the final Examination Paper? A. I did not. I wish to supplement my evidence. Mr. Brown, I see, in his evidence states something to the effect that Mr. Kirkland by some remarks directed attention to these last questions that were given to us. I never looked over those questions; I paid particular attention to what Mr Kirkland said; I would have been likely to do so if he had directed special attention to them. My attention was specially drawn to the June Chemistry paper, question No. 9, by one of the students who said that he had seen that in some place before. We hunted it up; I did not find it in my note-book; somebody discovered that the question had been given out to us, and I said I was sure I had not looked more particularly at that question. I did not attempt it at all at the examination.

Q. When was the last time you spoke to me,—do you recollect? A. It was at the time you were at Stratford, at the Teachers' Association.

Q. Some years ago? A. Yes.

Q. So you were not posted in the present case? A. No.

The Inquiry was adjourned until to-morrow.

FRIDAY, November 16th, 1877.

The Inquiry was re-opened at two o'clock.

WILLIAM WARWICK, sworn:—

BY MR. DAVIN.

Q. You are a bookseller in Toronto? A. I am.

Q. You have had large experience in connection with text-books in connection with our public schools? A. Yes, a good deal of experience.

Q. The old system in regard to text-books was for the Council of Public Instruction to give the vendors of the authorized text-books the right to vend for twelve months, at the end of which time the copyright was surrendered to the Department? A. I think the Reading Books, and Grammars, and Arithmetic Books were published according to the regulations.

Q. Some new regulations came into force in July, 1877? A. I believe so.

Q. Look at the old arithmetic—Smith & McMurchy's Advanced Arithmetic,—and at Hamblin Smith. What is the price of the advanced Arithmetic? A. Retail price 50 cents.

Q. What is the price paid by the public for Hamblin Smith? A. $1.

Q. How many of the Advanced Arithmetics have you sold within the last six months? A. We paid the copyright on a sale of 4,199.

Q. And how many publishers in Toronto have the right to sell that book? A. Four, but we bought part of Mr. Campbell's.

BY MR. EDGAR.

Q. You did not say you sold that number? A. Yes, that is the quantity sold.

BY MR. DAVIN.

Q. On the 15th May, 1876, did you address a letter to Mr. Crooks? A. Yes.

Q. You wrote as follows:—

"TORONTO, May 15th, 1876.

"SIR,—As suggested by our conversation on the text-book question, I respectfully beg to submit the following views:—

"I assume that your chief object in the matter is to secure the best text-books possible at the cheapest rate, and to encourage their manufacture in this Province.

"These objects, in my opinion, can be attained by securing the copyright by the Department of all text-books now in use, or to be introduced, and leaving the printing and publishing of them here to the competition of Canadian houses, subject to the usual restrictions and payment by them of such sums as you may have agreed to give for such copyright, by Royalty or otherwise.

"I would, however suggest, that for this purpose a lump sum would be found cheaper and more satisfactory than a Royalty, which sum could be paid by the first publisher, and duly shared by others as they came in. The copyright for Canada for any book being—before authorization—of little value to any English house, it could be bought for a very small sum, and doubtless any reasonable offer would be accepted for those now in use, inasmuch as you have the power to render it valueless by removing the book from the authorized list.

"The prescribing a book, the copyright of which is in the hands of an English house (or their agent), is granting a monopoly, which not only bars competition, but obliges the public to pay such a price as that house may think proper to charge.

"If the above plan is adopted, I have no hesitation in saying that many of the text-books now used in the Public Schools would be—as they could be—sold for one-half their present price; you will thus see the vast saving to be effected, and the great benefit to

the poorer classes in rendering education still cheaper than at present, to those most in need of it.

"Any sudden change in, or the withdrawal of, an authorized book, particularly if printed here, would be almost ruinous to publishers, who, to sell at a low price, necessarily print a very large edition, and I think that in justice to the trade no change should be made without full notice.

"I again urge, as my firm belief (which I venture to offer for your consideration), that patriotism and economy require that the authorized Canadian School Books should be made in Canada, and no monopoly granted to any house, either here or elsewhere.

"I have the honour to be,

"Sir,

"Your obedient servant,

"WM. WARWICK?"

A. Yes.

Q. You know that Adam Miller & Co. are the publishers of the *Canada School Journal?* A. I believe so.

Q. Does the publication of that journal give these gentlemen an advantage over the other publishers in regard to text-books? A. I could not say anything about that. It is not a question I have considered. It is a good advertising medium for Adam Miller & Co.

Q. Is it as good an advertising medium for others as for them? A. I suppose anyone can advertise who pays for it.

Q. What was the price of the copyright of Hamblin Smith? A. The Minister of Education compels publishers to pay a royalty on Hamblin Smith—4c. for the large one, and 2c. for the small one.

Q. Have you any idea what copyright was paid by Adam Miller & Co. for Hamblin Smith? A. I have no idea.

By Mr. Hughes.

Q. You mean Smith and McMurchy's Arithmetic? A. Yes; 4 cents for that, 2 cents for the other.

By Mr. Davin.

Q. What is the price of Mason's English Grammar. A. 75 cents.

Q. What was the price of the predecessor of that book, the Analytical and Practical Grammar of the English Language? A. 37½ cents, I think.

Q. The Analytical and Practical Grammar is sold by different publishers, the same as the Arithmetic? A. It is at present.

Q. Are you aware by how many? A. No. We pay no royalty on that. I could tell what we have sold, but we have published it so short a time that I could not say how many we have sold now. I could find out.

Q. At a certain period next year, I believe Mason's Grammar will entirely supersede that. A. Yes, I believe so.

By Mr. Edgar.

Q. You said there were new arrangements made in July, this year, with reference to text-books? A. I understood that there were new arrangements made.

Q. Before that, then, there were old arrangements. Under this old arrangement was the copyright extinguished or assigned to the Department? A. No. The copyright of the Readers was in the hands of the Department, and the copyright of the Grammars, and of the Arithmetics, and, I believe, of the Geographies, but I am not sure of that.

Q. Were there many that were not in the hands of the Department under the old regulation? Were there others? A. I think so.

Q. You know it, do you not? A. Of the authorized books.

Q. Of the authorized text-books, before the new regulations were made, were there not a great many of these of which the copyright was not extinguished or in the hands of the Department? A. I do not know that there were a great many.

Q. In proportion to the number? A. In regard to all the books that had a very large sale, the copyright was in the hands of the Department—the common school-books that have the largest sale—the reading-books, the grammars, the arithmetics and the geographies, I think, were all in the hands of the Department. Those are the books that have the principal sale.

Q. Can you tell us the number of the books which were authorized, the copyright of which was not extinguished? A. If you give me a list, I might probably tell you. I cannot from memory.

By Mr. Davin.

Q. Look at Miller's Analytical and Practical English Grammar in that list. Is there an asterisk placed in front of it? A. Yes.

Q. What does that mean? A. "The authorization to continue till the end of the year 1878."

By Mr. Hughes.

Q. You said you had a large experience in the book-publishing trade. Will you name any book you ever copyrighted yourself, or submitted for authorization to the Department? A. I never submitted any. What I said was, that I was a publisher and published books, and knew about publishing books.

Q. Were you the first publisher of any School-book that has been authorized or is now authorized? A. No.

Q. In your letter, read by Mr. Davin, you stated to the Minister that, if your ideas were adopted, you were confident that many of the books might be sold for half of their present prices? A. Yes

Q. The series of Reading books now authorized, and that have been authorized for some time, were published originally by Messrs. James Campbell & Sons? A. Yes.

Q. Did you obtain permission to publish these at any time? A. Yes, we do publish them.

Q. Then, if you publish these Readers, that is carrying out the idea you wished the Minister to adopt—that you and all publishers should be allowed to publish the book authorized? A. That is exactly what they did carry out.

Q. In regard to the Readers? A. Yes; and the arithmetics.

Q. Were the prices of the Readers reduced half, after you commenced publishing them? A. They were reduced very much after I commenced publishing them for about three years. They were sold after I published them, at almost the cost of paper and printing for two or three years; so the price must have been reduced, I should think.

Q. Were the prices reduced on the retail or the wholesale prices? A. I do not know the retail prices.

Q. You know that you and Campbell & Son, cut the prices so, that the retail traders got them at less rates? A. Yes.

By the Commissioner.

Q. Do you say that the reduction was in consequence of the competition between you and Campbell & Son? A. Yes,

By Mr. Hughes.

Q. Do you mean a cheaper rate to the public or to the retail trade who purchased from you? A. When I say they were sold at a cheaper rate, I assume it was to the trade.

Q. To whom were the prices reduced; to the retail trade or to the public? A. I do not know anything about the public. I can tell you the prices the books were sold for.

Q. When you said the prices were reduced, did you mean to the retail trade? A. I meant that of course.

Q. You mean you reduced the prices or enlarged the discount to the retail trade? A. Yes.

Q. Can you state that any parent in Canada ever purchased a Reader at a cheaper rate

than before you published them? A. I cannot tell. I can say that now in Hamilton I can give you the retail prices of the Readers.

Q. Then did your publication of these Readers reduce the price to the public so far as you know? A. Our publishing the Readers reduced their price, if you call the trade the public.

Q. I do not? A. They are our public so far as we are concerned.

Q. I mean the general public who purchase books for use in School, not for selling again. Did your publication of the Readers reduce the price of the Readers one-half to the general public? You stated in your letter to the Minister, that you thought it would reduce the cost of publication one-half? A. I did not mean the Readers.

Q. How much did you reduce the cost to the general public? A. We do not sell to the general public, but to the trade.

Q. Was the price reduced to the public? A. The ordinary price of the second book was 25 cents when Campbell first published them. The price to-day even in Hamilton, is 20 cents. The price of the first book was 40 cents; now, in Hamilton, they are 30 cents. The fourth was 50c, now sold for 40c; the fifth 60c, now sold for 50c. I have been told that to-day.

Q. Who gave you the information to-day. A. Mr. Stewart, of Duncan & Stewart.

By Mr. Edgar.

Q. You have no other knowledge? A. I have no other knowledge except what I have been told.

By Mr. Hughes.

Q. Is that under the new or the old regulations? A. That is the price to-day.

Q. After the Central Committee had introduced new Reading Books? A. The Central Committee have not affected the price of Reading books; there is no other series of Reading Books published.

Q. You said the prices generally have been raised and Mr. Davin handed you Smith & McMurchy's arithmetic and Hamblin Smith's arithmetic, one sold for 50 cents and the other for a dollar? A. Yes.

Q. Is any one, child or parent, compelled to buy Hamblin Smith's arithmetic if he does not choose? A. They have the choice between the two, as far as I understand.

Q. The Central Committee did not strike off the one when they put on the other? A. But they have struck off the grammar.

Q. Is any child or parent compelled to buy one or the other? A. No, they can buy both.

Q. Any one may purchase Smith & McMurchy's if they choose, now? A. I think so.

Q. Adam Miller & Co. publish *Canada School Journal*, do they? A. Yes.

Q. Do you advertize in the *Canada School Journal*? A. I have.

Q. And, as far as you know, any publisher may do so? A. Yes.

Q. Have you seen anything in the editorial matter of the *Canada School Journal* referring approvingly to Adam Miller & Co.'s publications? A. I do not read the *Canada School Journal* sufficiently to tell you that.

Q. You said that the geographies and grammars used to be held by the Department, Is that correct? A. I think it is.

Q. Were they all held? A. Lovell's geographies and the grammars were.

Q. Was Campbell's geography? A. I believe not.

Q. Was Morris's grammar? A. I believe not.

By Mr. Edgar.

Q. In the authorized list, I see Hamblin Smith's Arithmetic, Algebra and Euclid. Did you ever apply for the copy-right of any of these books yourself? A. I went into Rivington's one day and had a chat with them about the copy-right.

Q. Did you ask on what terms you could get it? A. I did not see any one to ask.

Q. Was that visit to see on what terms you could get it? A. I was in buying Bibles and other books.

Q. Did you make an attempt to see if you could buy the copy-right of any of these books? A. It was the Algebra, if I recollect rightly, I had an idea of buying.

Q. When was it you went to Rivington's about this—what year? A. It must have been last summer—I mean the summer of 1876.

Q. These appeared first in the authorized list of July, 1877, did they not? A. I cannot tell you.

Q. Did you know that book was to be authorized till 1877? A. I do not think it was authorized till 1877.

Q. Did you know of its being authorized before then? A. No.

Q. Did you know it was to be authorized before then? A. No. I was going to tell you that my object in going to Rivington's at all, was to take the book home and see if I could get it authorized. That was my idea in looking after the book in any shape.

Q. How many editions of the small arithmetic—Smith & McMurchy's Elementary Arithmetic—have you sold within the last six months? A. On that small arithmetic we paid a royalty on 13,409 copies in the last six months.

By Mr. Hughes.

Q. Is there any competitor for that arithmetic? A. There are four publishers of that arithmetic.

Q. Is any other small arithmetic authorized? A. This is the only one, I believe There are four other publishers who publish that arithmetic.

Q. Has the price of that book been reduced since the publication was allowed by other publishers? A. I do not think it. The price is low enough now, particularly when you have to pay a royalty of 2 cents a copy on it.

Q. So far as you know, so far as actual experience has gone, the method you suggested to the Minister has not been a success? A. I think, if my plan had been adopted, it would have been.

Q. Take the facts with regard to the Readers and that Arithmetic? A. The Readers are not affected at all by that plan of mine, because there is no change in them.

Q. Has the publication by various publishers of the Arithmetic or the Readers reduced the price to the public? A. Not in the price of the small or large arithmetic.

Q. Then, as far as practical experience goes, your plan has not been successful? A. I do not say that.

Q. Has it reduced the price of any book? A. It has reduced the price of the Reader certainly.

Q. Has it reduced the price of the Readers or any other book to any child in this Province? A. The probability is that it has.

Q. Can you state that it has—yes or no? A. I have told you.

Q. Has it ever reduced the price of a single book—Reader or any other kind? A. I have told you the original prices of the Readers, as I read them.

Q. Has it ever reduced the price? A. I have told you the present price in Hamilton.

By the Commissioner.

Q. You have mentioned that you published Readers and Mr. Campbell published them. A. Yes.

Q. And you supplied them at a low rate to the trade? A. Yes.

Q. Can you state whether the rate at which you supplied them to the trade was lower than publishers supplied them to the trade previously or not? A. For about three years it was.

Q. To what extent? A. About 15 per cent. The books were published at a very low rate. There is no margin. It is not as if there was 100 per cent. on them.

Q. I want to know whether, since the publication has been thrown open in this way,

the trade either has been, or can be, supplied at a cheaper rate than previously? A. With respect to the Reading books, do you mean?

Q. Those books that you spoke about, that you are publishing? A. The Reading Books have always been made at a very low rate. For about two or three years after I first published them, the price was reduced probably 15 per cent. That reduced the price so low that there was nothing made in publishing them, and Campbell and I agreed that we would sell them at a higher price—about 15 per cent more. That arrangement lasted for about two years, and then Lovell comes in and publishes them, and immediately the price was again reduced to about the old rate, when Campbell and I were competing, as it were, for them.

Q. Has it remained at that? A. For the last year there has been an arrangement between Lovell and Campbell and myself to keep the price up to what we consider we ought to get for them. It is not a very high price.

Q. Speaking of the present price, then how does that compare with the former prices, before the publication was thrown open? A. It would be about the same. That is ten years or more since the first were published.

Q. What other books do you publish? A. We publish the small and large grammar, and the small and large arithmetic.

Q. Are those produced by you at your publishing prices at any higher or lower rate than before? A. I do not think the prices of the arithmetics are changed. There is a royalty of 4 cents on one and 2 cents on the other, and the price is not exorbitant.

Q. So, practically, the prices are the same as they always were? A. So far as those two books are concerned. I think the reason why the price of that one is not altered is, that they are going to supersede it in a year.

WILLIAM COOPER CAMPBELL, sworn:—

BY MR. DAVIN.

Q. Are you a partner with your father in the firm of Campbell & Son? A. I am.

Q. Have you written to the Department of Education asking them to furnish you with a list of the school sections throughout the country, and teachers' addresses? A. I have, twice.

Q. Did they furnish you with them? A. No, it was refused.

Q. Have you the letters with you? A. I have not.

Q. Have you them at your establishment? A. The letters from the Department I presume will be fyled away.

Q. Do you know that Adam Miller & Co. publish the Canada School Journal? A. I understand so.

Q. Do you know it is the fact? A. To the best of my knowledge and belief.

Q. Does that, or does it not, place them in a superior position in regard to school-books than other publishers? A. In the way of reaching the teachers?

Q. In any way? A. There is no doubt of it; yes.

Q. Tell the Commissioner how it is? A. Inasmuch as the Journal reaches all the teachers throughout the country, and they have the opportunity of advertising their books more extensively than any other publisher.

Q. Do you know as a fact whether they have the means of obtaining the addresses of teachers and the number of school sections? A. I do not know it as a fact, any more than they look over the *Journal of Education* with, I presume, their list of subscribers.

Q. Do you know whether Mr. McLellan's books—the unauthorized ones—are used in schools? A. All I can judge from is that we sell them. I cannot say that they are used in schools. I do not know any particular schools. But, judging from the quantity that are sold, they must be.

Q. Look at Swinton's Language Lessons. What edition is that? A. The third edition.

Q. What is the usual edition of a book of that sort? A. It is impossible to say. It might be 1,000 or it might be 5,000.

Q. What is the usual edition? A. It might be for a small book of that kind some 2,500 or thereabouts—perhaps 5,000.

Q. When did you know that Hamblin Smith's arithmetic was authorized? A. I knew it was authorized in the beginning of June.

Q. How did you know it was authorized? A. There was a proof sheet of the authorized books sent to me—I presume from the Department.

Q. Do you know that it was from the Department? A. I do not know. It was simply enclosed in an envelope and sent by post.

Q. Was that the only notice you got of its authorization? A. Of Hamblin Smith's? It was the only notice that I could tell. I had a conversation with Dr. McLellan and Mr. Hughes once in the office, when we went over the list of books which they had, and I merely presumed from their list that they were going over the authorized list; but they did not tell me it was authorized.

Q. Did you see it advertized anywhere as an authorized book? A. No.

Q. When did you know that Mason's Grammar was authorized? A. I did not know; but I had a general idea that it was authorized in February.

Q. At that time was Mason's Grammar used here at all? A. Not that I am aware of.

Q. Are you aware whether, at any time, any publishing house in Toronto had printed an edition of Mason's Grammar? A. From personal knowledge, I cannot say I knew it. I was told that their edition would be out shortly.

By the Commissioner.

Q. Whose edition? A. Adam Miller & Company's.

By Mr. Davin.

Q. Did any member of the firm tell you that? A. Yes; Mr. Gage. He did not tell me personally, but he told Francis Martin, our collector.

Q. You are a publisher of considerable experience. If that book had not been authorized, would it have been unsaleable? A. Undoubtedly, it would not have been worth anything at all.

By Mr. Glashan.

Q. You wrote a letter to the Minister, which was read here, in which you stated that Adam Miller & Co. had advertized Swinton's Grammar as being revised by Mr. ———, of Ottawa, supposed to be Mr. Glashan. Had you any reason to believe it was Mr. Glashan? A. If you will give me a copy of the letter I can tell better.

By Prof. Young.

Q. You stated you had written twice to the Department for the names of the different schools throughout the Province, and did not obtain an answer? A. We did obtain an answer. We had an answer both times, and both times a refusal.

Q. Have you any reason to believe that this refusal was in consequence of any recommendation or representation of the Central Committee? A. I have no idea whatever that the Central Committee had anything to do with it. All they had to do with was handing this over to Adam Miller & Co.

By Mr. Edgar.

Q. When did you first know that Mason's Grammar was to be authorized, or was authorized? A. When I first knew it was authorized was in the beginning of June, or it may have been in the latter part of May.

Q. Before that you had telegraphed for plates, had you not, to England? A. No, I had not done so.

Q. Had not your house sent? A. No, our house had not sent.

Q. Or had you instructed any one to apply? A. We have an agent in London, and I

wrote to our agent in London stating, that there seemed to be some talk of this grammar of Mason's being authorized, and requesting him to see the publishers in reference to it.

Q. When did you write this? A. In February.

Q. What was your knowledge then of its being authorized? A. My knowledge amounted to nothing particularly, beyond what we had gleaned by gossip, as it were.

Q. Did any member of the Central Committee gossip with you about it? A. No, never. We never had any information from any member of the Central Committee whatever. We had applied to Mr. Crooks, and to Professor Young, as Chairman, for a list of the authorized books at as early a date as possible, and were refused by both of them; but I have reason to believe that information was supplied to others.

Q. Do you know that? A. Simply from what was said to our clerks.

Q. Were you present? A. I was not.

Q. What are their names? A. Francis Martin, and J. B. Clougher, a clerk of Mr. Warwick's.

Q. You believe these gentlemen know something about the authorization of these text-books? A. I think they could repeat what was said to them by Mr. Gage, a member of Adam Miller & Company's firm, or others in Adam Miller & Company's establishment.

Q. You said that you would not publish Mason's Grammar unless it were an authorized book? A. No.

Q. Why? Is it not a good work? A. I know nothing about the merits of the work, but it would be useless in Ontario unless it were authorized.

Q. Why? A. Because it must be sold to the Public Schools, or it would be of no value.

Q. It would be of no value unless it were an authorized text-book? A. No text-book is worth publishing unless it is authorized or under the peculiar circumstances of some others.

Q. Your firm has never published a text-book unless it was authorized? A. I do not think so.

Q. What do you call Fleming's Analysis? A. That is authorized.

Q. Did you not publish it before, at the risk? A. There was no risk, because the book was used, to a certain extent, and we knew there was no risk.

Q. That was one case? A. It does not follow it was authorized.

Q. Was it authorized? A. I said I was not aware it was authorized.

Q. Do you know when you published it? A. I could not tell without referring.

Q. Do you know Mr. William Houston? A. I have met him.

Q. Do you recollect any occasion in which you met him in your place of business? A. He has been several times into our place of business.

Q. Do you recollect having any conversation with him in your place of business when your father was present? A. I have no recollection. Yes, I have met him when my father has been present, but have had no particular conversation with him.

Q. You remember no particulars of the conversation? A. No.

Q. Of any conversation that you had with him at your place of business when your father was present? A. No, I remember none.

By Mr. Glashan.

Q. Look at that memorandum? A. That is a memorandum written by my father.

Q. I wish to know whether you had any reason for supposing that it was I who was Mr. ——— of Ottawa? A. I had no particular reason, except that some one must have mentioned it, or it would not have been mentioned here.

Q. Did you send out a circular to Inspectors respecting Morris's Grammar, and asking their opinion respecting any changes to be made in it? A. Yes.

Q. You asked also their influence in favour of introducing the new grammar? A. I did not ask any influence.

Q. A recommendation? A. No, I did not ask any recommendation.

Q. Do you remember that my answer was that I had already introduced your grammar into the Ottawa schools? A. I believe that was your answer.

By Mr Edgar.

Q. Do you know the price of Mason's Grammar in England? A. 3s. 6d. sterling.

Q. Is not William Smith's Grammar a text-book? A. Which do you refer to?

Q. Did you not publish some English Grammar without its being an authorized text-book? A. We published one edition. The Latin and Greek Grammars are both authorized.

Q. The English Grammar was not? A. I am not prepared to swear it was not.

Q. Do you know it was? A. I do not. Previous to the formation of the Central Committee, there was a Council of Public Instruction, which authorized a large number of books which the Central Committee have not authorized. It is not on the list of the Central Committee, and it was on that of the Council of Public Instruction.

By Professor Young.

Q. Has the Central Committee ever authorized any text-book? A. I suppose I should have said the Minister of Education.

By Mr. Edgar.

Q. You said that no school-books would be worth publishing unless they were authorized. I am told that your firm published William Smith's English Grammar when it was not authorized. Is that so, or not? A. To the best of my knowledge and belief, it was published by us after it was authorized. At the same time, it was not authorized by the Minister of Education.

Q. Was there any Minister then? A. There was no Minister then.

Q. By whom was it authorized? A. By the Council of Public Instruction when they existed.

Q. When was it published by you? A. I could not tell without reference to dates.

Q. How near? A. About two years ago, or thereabouts—I am talking very loosely.

Q. Was Campbell's Geography published by your firm? A. Yes.

Q. Before it was authorized? A. Yes, undoubtedly.

Q. I thought no book was worth publishing until it is authorized? A. On the other hand, no book was authorized at all unless it is published. Mason's Grammar might have been authorized. The English edition is quite competent to be authorized, as many other grammars are. In fact all the grammar books are authorized before they are published here.

Q. That is, all the English books? A. They are all English books, nearly.

By Mr. Hughes.

Q. What was the retail price of the First Reader last year, or at the commencement of this year? A. I presume five cents. I have not much acquaintance with the retail price of these Readers.

Q. Do you know the prices before the present regulations came in force? A. They are about the same.

Q. The Second Part, retailed at ten cents, what was it before? A. The retail price of the Readers I know nothing about.

Q. Can you say what the wholesale price was? A. Yes.

Q. What was the wholesale price of Part 2? A. At what time of the year?

Q. About the first of June of this year; without the discount off? A. There are several prices at which there may be a dozen sold, and prices at which there may be a gross sold.

Q. You stated in your evidence that the *Journal* reaches all the teachers. Do you know that it reaches all the teachers? A. I cannot say it does. In the Departmental notice it said the *Journal of Education* would be discontinued and the *Canada School Journal* would take its place.

Q. In a certain respect? A. I am not aware in what respect. It has been always.

understood that the *Journal of Education* was sent to every teacher throughout the country, and, when a Departmental notice was given out saying that the *Canada School Journal* would take its place, the natural inference would be, that it is sent to all the teachers.

Q. Do you know as a fact that it is? A. I do not.

Q. You stated that Dr. McLellan and I went over the prices of books with you? A. Yes.

Q. Did we state the object we had? A. That you wanted to get the names of the publishers, and the prices of those books.

Q. The lowest prices at which those books could be sold to leave a margin for the publishers. A. Yes.

Q. To inquire at what price you published the books, and the lowest prices. A. Yes.

Q. Did we ask you for any information as to your English invoices, the discount allowed, and the rate per cent. for exchange, and so on? A. I do not recollect.

Q. Do you recollect whether, in estimating the fair price to put on Morris' Grammar, for instance, we asked you what the book cost you and what per centage you had to pay the English publishers for that book? A. Yes, I told you that, as far as I remember.

Q. Did not Dr. McLellan and myself try to get fairly at an estimate of prices that would be just to both the publishers and the country? A. Yes, I think so.

Q. Have Adam Miller & Co. obtained a list of the different school sections and the teachers in the country? A. That I cannot swear to, any further than their taking over the *Journal of Education.*

Q. Could you name the High and Public School books now on the authorized list of which the Canadian copyrights are held by your firm, if I read them to you? A. Yes.

Q. Do you publish the Canadian series of Reading books? A. Yes, but we do not hold the copyright.

Q. Not exclusively? A. Not by any means.

Q. The Primer of English Grammar, by the Rev. R. Morris? A. Yes.

Q. Do you now publish Fleming's Analysis? A. No.

Q. Do you publish Miller's Analytical and Practical English Grammar? A. We do.

Q Do you publish the English Grammar, for Junior classes, by Rev. W. H. Davies? A. We do.

Q. The Advanced Arithmetic, for Canadian Schools, by Smith & McMurchy? A. We do.

Q. Do you publish the Elementary Arithmetic, by the same authors? A, We do.

Q. Do you publish Todhunter's Geometry? A. No.

Q. Do you control its sale in this country? A. No.

Q. Do you publish Campbell's Geography? A. We do.

Q. Do you control the sale of Freeman's European History in this country? A. We publish it here.

Q. Do you control the sale of the History of England, by Edith Thompson? A. We publish the new edition.

Q. Do you control the sale of Oliver's Lessons in Elementary Botany? A. No.

Q. Do you publish the Chemistry Primer, by Roscoe? A. We publish that.

Q. Do you control the sale of the Elementary Physical Geography, by Geikie? A. We do.

Q. The Physical Geography by David Page? A. No.

Q. Did Dr. McLellan and myself lower the prices of any of these books, or did the Minister lower the prices of any of these books? Were the Grammar and Science Primers, for instance, sold for 30c. before this list was issued? A. The prices of the Grammar Primer and the Chemistry were reduced from 30c. to 25c.

Q. 30c. was the regular Canadian price for the English shilling? A. Yes.

Q. And we based our estimates on 25cts. for the English Shilling? A. Yes.

Q. There are 16 books published or controlled by you? A. The Readers, Grammars, and Arithmetics are common to everyone.

Q. But there are six books without all those? A. Three of these are Primers.

Q In regard to High School books—do you control the sale of Arnold's First and Second Latin books? A. No.

Q. Of Dr. William Smith's Latin works? A. The Latin Grammar we do, and the Principia Latina, we do.

Q. Does that mean four separate books? A. No, Part I.

Q. Bryce's series of Latin Readers? A. We do not control them exclusively.

Q. Can any other wholesale publishers import them? A. Yes, any one who chooses to do so.

Q. Have you the sole sale of Dr. William Smith's Latin Grammar? A. Of these English books, we have no sole sale of any. In publishing an English copyright in this country, the English book is allowed to be imported, and we have no sole sale of any of them.

Q. Do you publish Dr. Smith's Grammar? A. We have printed it.

Q. Do you publish Harkness's Latin Grammar? A. It is an American book published by Copp, Clark & Co. We print it.

Q. Do you publish Arnold's Latin Composition? A. No.

Q. Do you control the sale by any arrangement with the publishers? A. No.

Q. Latin Composition by means of the English Idiom, by Abbot? A. No.

Q. Dallin's materials for Latin Prose? A. No.

Q. Dr. Smith's Greek works—do you control them, or have you republished them? A. No.

Q. You do not control the sale of that book? A. No. We could if we wished, we have the plates, but we have not printed it. There is no sale for it.

Q. You have the copyright? A. No. There is no copyright unless it is printed in this country. We have not printed it here, nor has anybody else to the best of our knowledge.

Q. Are there any of the prices fixed by the Committee that you think are too high? A. On which books?

Q. On any of them. Are there any prices fixed by the Minister of Education, that you believe to be too high? A. Hamblin Smith's Arithmetic at $1 is too high, as compared with the other at 50c.

Q. Is that the only Arithmetic authorized? A. It is authorized in conjunction with the other I believe, but the recommendation is so strong that the sale of the other is declining altogether.

Q. What recommendation? A. The recommendation of Dr. McLellan in the papers, and the knowledge that he is the Examiner in Arithmetic.

Q. You do not know any book authorized exclusively in any subject, the price of which you think is too high? A. Mason's Grammar becomes the exclusive grammar after the end of next year.

Q. How about Morris's Primer? A. The price is reduced.

Q. Is it not authorized? A. It is.

Q. How does Mason's become exclusive? A. Because the one is an introductory grammar and the other is an advanced grammar, while the one is published at the same price as the other introductory grammar, and the other is published at double the price of the former advanced grammar.

Q. Do you know that the Minister of Education has raised the price of any book? A. I do not remember.

Q. Do you not think the Committee has lowered the price of many of the books? If there has been any change, has it not been downwards instead of upwards? A. The changes made by the Committee, have as a rule been towards a reduction—I refer more particularly to the High School books.

Q. Do you believe the plan of the Government or the Department holding the copyright to be an equitable one? A. That is a point on which you are asking an opinion.

Q. I ask your opinion as a business man? A. As a business man I should say it would be impracticable.

Q. When the Council of Public Instruction held the copyrights of certain books—the readers, the grammars, and Smith and McMurchy's Arithmetic—do you think good results followed? Do you think the price of the books was lowered? A. No; and bad results followed from it.

Q. Was the mechanical quality of the books improved by their being placed in the

hands of the different publishers? A. The quality of the books was not changed. The books remained the same as they were at first.

Q. I know you maintain the regulation standard of quality. I refer to the series published generally. Do you think an improvement was made in the quality of the books, mechanically, by the competition? A. No. There was no improvement.

Q. You think that the method of holding the copyright in the Department is impracticable, and that bad results followed the attempt to control the copyright by the Department? A. Undoubtedly; inasmuch as the moment the Department holds the copyright there are a dozen ready to come forward with copyrights to sell to them, and it is the question who has the most influence to get their copyrights bought.

By Mr. Edgar.

Q. When was Campbell's Geography authorized? A. By the Council of Public Instruction, some time last year. I think it was just shortly before the Council ceased to exist. It may have been late in the Fall before.

Q. When did your firm begin to publish that useful and popular book? A. Ten years ago.

Q. And you have been publishing it ever since? A. Yes. I should wish you to understand that the principal sale was in Nova Scotia, New Brunswick, Prince Edward Island, and Newfoundland, as well as British Columbia and Manitoba.

Q. It was published in Ontario also, and used considerably? A. No, it was not. There were notices sent from the Department here stating that the book must be discontinued in the different schools here.

Q. You continued publishing it? A. Yes, because we sold it in every place, except Ontario.

By Mr. Davin.

Q. Tell me how many pages there are in Mason's Grammar? A. 298 pages.

Q. How many pages are there in the Fourth Reader? A. 384.

Q. How many pages are there in Hamblin Smith's Arithmetic? A. 356.

Q. Is the Fourth Book open to all publishers to publish? A. Yes.

Q. Is that Fourth Book as expensive to get up as Mason's Grammar? A. Mason's Grammar might be a little more expensive.

Q. Would it make a difference of four cents in the volume—the getting up of the book—the superiority? A. It would be hard work to say exactly without going into a calculation; but probably it would be.

By Mr. Hughes.

Q. Does the price of a book depend on the number of pages? A. Not always.

By Mr. Davin.

Q. I believe there are expensive plates in the Fourth Book? A. There are some illustrations.

Alfred Baker, sworn:—

By Dr. McLellan

Q. You are a graduate of the University of Toronto? A. I am.

Q. What was your standing at the final examination? A. I was gold medallist in my year.

Q. Have you had experience as a teacher? A. I have.

Q. And an examiner? A. Yes, in the University and elsewhere.

Q. Have you made a comparison of the questions in the Second Class Natural Philosophy Paper of this year with Kirkland's Statics and other works of that kind? A. Yes.

Q. The first question is said to be the same—what is your opinion? Have you ex-

amined that with Kirkland's Statics and other papers? A. It would assist me possibly, if I had copies of these questions in my hands.

Q. Have you found that problem in any other text-books, and if so, what? A. I have found it in Magnus, page 241.

Q. Not only the same in principle, but the same in words? A. Yes. In the Examination Paper it is: "A weight of 100 lbs. is suspended by two flexible strings, one of which is horizontal, and the other inclined at an angle of 60° to the vertical; what is the tension of each string?" In Magnus it is: "A weight of 24 lbs. is suspended by two flexible strings, one of which is horizontal, and the other is inclined at an angle of 30° to the vertical direction; what is the tension in each string?"

Q. Have you found the problem in any other text-book? A. I have found problems identical in principal.

Q. Have you found question 2 in any other text-books? A. I have found that also in Magnus, page 244: "Show how it is possible for a sailing vessel to make way in a direction different from that of the wind." It is almost identical with the question in the paper: "Show by a diagram how it is possible for a sailing vessel to make headway in a direction at an angle of 60° with that of the wind." I would understand Magnus to mean in any direction, so that it would include an angle of 60°.

Q. Is there anything peculiar in the fact that a diagram should be asked for? A. I do not think so. I think it would be a natural thing to ask for, when requiring an answer to such a question, and it is an exceedingly common thing to give a diagram in a thing of that kind. I think the diagram is asked for in other books. I think it is found in Johnson's charts on Natural Philosophy.

Q. Have you found it in any other text-books? A. No. Only in Peck's ganot there is an explanation of the same thing. There is not the same resemblance, though.

Q. There is a diagram there? A. Yes.

Q. Have you found question 3 in any of the text-books? A. I have found it in Wormell.

Q. Are you aware that the same question is found in any other text-book? A. The same in principle. I have been unable to find the same in wording in any other text-books.

Q. You are not aware that it occurs in Feer's Mechanics? A. I have heard so. I have not seen it.

Q. Is question 4 peculiar to Kirkland, or is it found in other books? A. It is not peculiar to Kirkland. I found one as close in wording in Magnus, page 238: "A ladder the weight of which is W, and acts at a point one-third of its length from the foot, is made to rest against a smooth vertical wall, inclined to it at an angle of 30°, by a force applied horizontally to the foot; find the force." The solution of that is also given in Magnus.

Q. Have you found it in any other books? A. The same in principle.

Q. In many of the books? A. In Godwin, and Todhunter, and Cherriman, and a couple in Wormell resembling it.

Q. No. 5? A. I found that in Magnus, more closely resembling the Examination Paper than Kirkland does. At page 272 in Magnus: "A triangular board weighing 30lbs. is carried by 3 men, each standing at one of the corners; what weight does each bear?"

Q. Do you consider that as similar even in wording to this question? A. I think it is more similar, because in Kirkland the answer is suggested to us, that each man supports the same weight. In both the Examination Paper and in Magnus, the expression, supported by three men, is employed.

Q. Is that question quite a common one? A. Very common. It is in Galbraith and Houghton, in Magnus, in Todhunter, in Hamblin Smith, in Snowball, in Cherriman and in Wormell.

Q. Have you found anything like question No. 6 in any of the other text-books? A. In Hamblin Smith, page 105: "In a system of pulleys in which each pulley hangs by a separate string there are three pulleys of equal weights. The weight attached to the lowest is 32 lbs., and the power is 11 lbs. Find the weight of each pulley." That is identical.

Q. Did you find that question or others precisely the same in principle elsewhere? A. found another analogous to it on page 106 of Hamblin Smith and in Todhunter,

Snowball, and Cherriman. The one in Hamblin Smith was the one which most closely resembled it.

Q. Read question 7 in Examination Paper? A. "Explain the principle of virtual velocities, and apply it to find the relation between the power and the weight in a lever of the second order."

Q. Read the question in Kirkland's Statics, page 131, No. 1? A. "Explain the term *virtual velocity*. State the principle of Virtual Velocities, and show that it holds good in a lever of the third order."

Q. Do you call that a problem, or a book-work question, found in any book whatever? A. I would consider that book-work.

Q. Do you consider it a fair thing to make a comparison in that way? A. In the statement of propositions in book-work, in almost all mathematical works, there is a strong resemblance, and I should not think there was anything at all singular in that.

Q. Then every question which it has been attempted to show is peculiar to Kirkland, is found in other text-books? A. Yes.

Q. How many are found in Magnus? A. Four in Magnus.

Q. How many in Todhunter the same in principle? A. Four, and 4 in Hamblin Smith—in fact 5, but two are the same problem,—4 in Wormell, and 4 in Cherriman.

Q. Mr. Robertson says the course prescribed for the second-class is a wide course? A. I consider it an exceedingly narrow one.

Q. On what ground do you consider it so? Have you there the course prescribed? A. In Natural Philosophy, it is Composition and Resolution of Forces, Principle of Moments, Centre of Gravity, and then Hydrostatics. It is narrow in the way it is treated, but it is rendered still more so in this case, because the collateral mathematical work which accompanies it is very narrow indeed. For instance, they are supposed apparently to know nothing of Trigonometry, Algebra, only as far as easy Quadraties, and only the first two books in Euclid. These all bear on a knowledge of Statics, and if a limited knowledge is required of candidates in pure mathematics, of course it is impossible to go far in mixed mathematics.

Q. Mr. Robertson thought the course so wide that it was quite possible for an examiner to set a paper outside of the available questions? A. I do not think it is possible to avoid repeating the available questions in book-work.

Q. And riders? A. And I think the same style of rider exceedingly likely to occur.

Q. You know something of Todhunter? A. Yes.

Q. Look at the 86th page? A. "On the other hand, where there is an official programme, which is very strictly maintained, it becomes in some measure possible to conjecture what a forthcoming Examination Paper will contain." . . . "In some departments of science, as, for instance, the elements of natural philosophy, it is found by no means easy to supply an adequate variety of questions at once sufficiently simple and yet requiring some employment of thought. The consequence is obvious. If examiners are practically unrestricted, they gradually withdraw from the sterile fields, and cultivate those which supply a more abundant harvest of problems and exercises. If the examiners are closely confined to the official programme they cannot avoid repeating the available questions, so that a provident tutor may advance a good conjecture as to what is likely to be set."

Q. It is shown that there were six problems on the paper very similar to those in Kirkland's book. Mr. Robertson could not account for that fact. Can you offer any explanation of the fact that more questions should be found in Kirkland's book than in any other book yet published? A. If the Examination Paper were made up by selecting problems from different authors, I found, for example, four questions in Magnus as closely resembling the problems in the paper as any in Kirkland. Now, I find that altogether there are 448 problems in Kirkland, and 269 in Magnus. Magnus is a more extensive work. He supposes a knowledge of the six books of Euclid.

Q. He takes Trigonometry, does he not? A. I am uncertain. I scarcely think he supposes a knowledge of Trigonometry. He also takes up solids, and his treatment of the principle of energy enables him to have a greater scope. Notwithstanding that, there are only 269 in Magnus, while there are 448 in Kirkland. Allowing for the fact that Magnus treats the subject more extensively, you might reasonably say there are twice the number of problems over the same ground in Kirkland as in Magnus. Therefore, the

chances are that there would be only half as many problems resembling those on the paper in Magnus as in Kirkland, whereas I actually find more; so that the chances are in favour of their being taken from Magnus rather than from Kirkland.

Q. Do you think it would be easy to set a paper for pupils in this elementary subject, and to avoid the questions which have been referred to as peculiar to Kirkland, or to avoid the type questions in Kirkland's book? A. I do not think it would be possible to avoid setting questions similar in principle.

Q. Do you consider that Kirkland's book, according to the number of problems it contains, has more problems suited to our course than any single book with which you are acquainted? A. I am satisfied that no book can be found which contains so many problems by any means, to solve which requires no greater knowledge of pure mathematics than Kirkland's.

Q. Then might an examiner very readily set a paper, not having Kirkland, but having Magnus, Todhunter, and Hamblin Smith before him, with all these questions in it which are found in the paper, without looking at Kirkland? A. Every one of these questions is found in other authors, so, if he surrounded himself with other books, he could get all of them.

Q. Would you consider that any students trained in Magnus, or Cherriman, or Twisden, could be as well prepared for the examination as if trained with Kirkland's book? A. I think so.

Q. As it is an authorized text-book, do you think an examiner would be justified in preparing his paper on that book? A. That would appear to me to be part of the object of authorizing a book, and it would be the most natural thing in the world for an examiner to follow that book.

Q. In setting a paper for advanced students, would you expect the principles which you wanted to be brought out to be disguised in tolerably difficult riders, in more difficult riders than those set for students just beginning the subject? A. Certainly.

Q. Did you examine the Natural Philosophy paper, for 1876? A. Yes.

Q. Did you find questions there similar to those in the various text-books? A. Yes.

Q. Do you know by whom that paper was set? A. I did not know at the time I instituted the comparison.

Q. Is there anything you desire to state in regard to the general conclusions at which you have arrived? A. I instituted a comparison between Kirkland and Magnus, that has already appeared in the examination. In the points where they were nearly covering the same ground, there were nearly twice as many problems in Kirkland as in Magnus, and four of these problems were found in Magnus, while it would be reasonable to expect that only half as many would be found in Magnus as in Kirkland — that is, three. As four are there, the probability is that the paper might have been made from Magnus, rather than from Kirkland. Then, the fifth rider more strongly resembles Magnus than Kirkland. If the examiner was borrowing his problems from a particular text-book, if he was borrowing from Kirkland, why should he select Magnus's wording? I think that Mr. Kirkland's book contains very few original problems, that it is a book which is made up by culling elementary problems from almost all the elementary works which treat of the subject; and accordingly, if an examiner were to sit down to make up a paper, and were to act as examiners frequently do—surround himself with a number of books on the subject, and select simple problems from those books, it is exceedingly likely that all these elementary problems would be found in Kirkland. The book is a selection of the most elementary problems from all the best known elementary works on the subject.

Q. Turn back to question No. 3. What have you corresponding to that? A. At page 149, of Wormell, I find: "The whole length of each oar of a boat is 9 feet, and from the hand to the row-lock the distance is 2 feet 3 inches; each of eight men sitting in the boat pulls his oar with a force of 60 pounds. Supposing the blades of the oars not to move through the water, find the resultant force propelling the boat.

Q. With regard to the Arithmetic paper for first-class, have you the questions with which comparisons are made? A. Yes.

Q. Have you made a comparison of those problems said to be entirely identical? A. I glanced over those problems.

Q. What is your opinion in regard to question 2 of the Examination Paper, and pro-

blem 13 of the work? A. I do not think the resemblance is very marked for an arithmetic paper. I do not think it is marked at all for an arithmetic paper. Nor do I see the marked resemblance between question 3 on the paper and problem 23 in the book.

Q. Do you think the questions are sufficiently different? A. I do.

Q. Do you consider that problem 23 of the book and problem 3 of the Examination Paper can be fairly said to be identical even in principle? A. I think they are different altogether.

Q. Even in problem 16 of the book and problem 4 of the paper, is there an element of difference! A. In one it is interest payable on gold, and in the other it is interest payable on bonds.

Q. Would you consider the problems sufficiently different for the purposes of an Examination? A. Yes.

Q. What is your opinion with respect to the comparisons of problem 19 with question 5? A. They somewhat resemble each other.

Q. Are they common problems—problems commonly found in other text books? A. It is not an unusual style of problem at all.

Q. Would you consider the change of wording sufficient for the purpose of an examination? A. I think so.

Q. Did you compare problem 10 with question 6 on the paper? A. There is rather a marked difference between the two. In question 6 on the Examination Paper, copper is introduced—a third element. The problem is quite altered.

Q. The problem is a very common one, is it not? A. Yes.

Q. Problem 3 in the book and No. 9 on the paper? A. These resemble each other, but the style of problem is so exceedingly common that I do not think anything of that.

Q. Are these questions, which are said to resemble each other so markedly peculiar to the Book of Problems? A. No; it is exceedingly difficult to make up a great variety of problems in Arithmetic—the principles are so few.

Q. Have you compared these with previous Examination Papers? A. I have not.

Q. Are all of them to be found in ordinary books on arithmetic, or problems, identical in principle? A. Problems identical in principle are of common occurrence.

Q. And similar in wording? A. I should judge so, because we naturally fall into a sort of lingo in wording mathematical principles.

Q. Mr. Davin tried to leave an impression that the paper was so constructed as to be equivalent to giving candidates beforehand a knowledge of the Examination Paper. Is that your opinion? A. No. I do not think so.

Q. Have you a copy of the book of problems? A. I have.

Q. Do you know it pretty well? A. I have looked over it fairly well.

Q. Have you made a comparison of the other three papers with the book of problems? A. I have not.

By Mr. Davin.

Q. What is your profession? A. Mathematical tutor in University College.

Q. Have you supplied any questions to Mr. McLellan for Examination Papers?

The witness objected to answer.

Q. Did you set the papers on arithmetic and algebra in 1876 for Dr. McLellan? A. No, I did not.

Q. Did you supply the larger number of questions for that Examination Paper? A. I think not.

Q. You say that the first question on the paper about Statics is in Magnus, the second in Magnus, the third in Wormell, the fourth in Magnus, the fifth in Magnus, the sixth in Hamblin Smith. Are all these questions found in any one of these books? A. All of them are not. Four are found in Magnus.

Q. Did you notice the order in which the subjects occurred in Kirkland's Statics? A. Yes.

Q. Is the order on the Examination Paper the same as the order of Kirkland's Statics? A. I think it is about the same.

Q. Have you any doubt about it? A. To give you a definite answer I must look again. I glanced at it in so hasty a manner in making the comparison that I cannot say.

Q. You find the first question on page 21 of Kirkland, the second on page 33, the third on page 61, the fourth on page 65, the fifth on page 86, the sixth on page 106, the seventh on page 131. Are these in the same order. Do they run in the same order? A. They do.

Q. Turn to Magnus. Is the following the order in Magnus: Simple machines, triangle of forces, resolution of forces, moments, centre of gravity? A. Machines come first in the part of his book relating to statics.

Q. What next? A. The theory of equilibrium, which corresponds to the beginning of Kirkland's book. Under that head would be treated the triangle of forces.

Q. What is the third? A. After the composition of forces, conditions of equilibrium, and then resolution of forces.

Q. Next to that you have moments? A. Yes; and after that centre of gravity?

Q. That is not the same order as the questions? A. No, it is not.

Q. You have Wormell there. See if that is the same order as that in Kirkland? A. It is rather difficult for me in haste to look over these and express an opinion as to the order of subjects. They are found under different heads.

Q. I am told it is—Resolution of forces, triangle of forces, moments, centre of gravity, machines? A. That is the order.

Q. Turn to Hamblin Smith; is the order there—Triangle of forces, resolution of forces, centre of gravity, moments, machines? A. That is the order.

Q. And that order is different from Kirkland? A. Yes.

Q. Now, Magnus contains only four of these questions? A. Yes.

Q. That paper that was copied from Wormell is not in your own handwriting; who gave you that paper? A. It is a copy I have.

Q. Who gave it to you? A. I obtained the copy from Mr. Glashan.

Q. You told Mr. McLellan that an Examination Paper on a subject which was so narrow as this subject of Statics could not be set without repeating the questions that are in that Examination Paper? A. Is that exactly what I said?

Q. Did you tell Mr. McLellan that the course of study was so narrow in Statics that an Examination Paper could not be set without repeating his questions or some of them? A. That is my opinion.

Q. That a paper could not be set without repeating some of those seven questions? A. You are speaking of problems; I was speaking of bookwork.

Q. I am asking about them as they are set here. Do I understand that those questions or problems in Statics would have to be repeated? A. These riders would not have to be repeated. The bookwork, however, would have to be repeated, I consider. The riders would have to be repeated in principle, because, of course, they are mere applications of the bookwork.

Q. Tell me how many questions in Statics there are in the first-class 1876 paper? A. There are three problems here, but there are none of them bookwork, so it does not relate at all to what we are discussing.

Q. I understood you to tell Mr. McLellan that there was really more probability that he had borrowed from Magnus than from Kirkland? A. I made a previous explanation. I said, viewed in a certain light, and previous to that there was an explanation. I said, viewed in that light, it is more probable that these questions were borrowed from Magnus than from Kirkland.

Q. Seeing that the questions are in the same order in Kirkland, do you still adhere to that opinion? A. I do not take that into consideration. I do not think anything at all of the order.

Q. You do not? A. Nothing whatever.

Q. You think it has no bearing on the question? A. I think the examiner learnt Statics from a book in which the order is the same. I would do the same because I first learned Statics from a book in which that order was followed.

Q. What book? A. Cherriman. With a slight exception—resolution and triangle of forces are inverted, but in the same chapter.

Q. You stated to Mr. McLellan that it was a very proper thing that an examiner should take his questions from a text-book, that is to say, from Kirkland's Statics. Was

that your evidence? A. I do not think you are repeating Dr. McLellan's question. I think he said "base" the questions on the text-book.

Q. Do I understand you to say that these questions are based on Kirkland's Statics? A. I simply answered Dr. McLellan's question.

Q. I ask you, are those questions, in your opinion, based on Kirkland's Statics? A. I am not in a position to say so.

Q. You will not say that? A. I am not going to say they are based on Kirkland's Statics, or on what book they are based.

Q. But you think it would be a proper thing to base the questions on the text-book? A. I do. Yes; I always do it myself.

Q. Will you say, looking at the fact that these questions are in the same order as you have the questions in Kirkland's Statics—is it your opinion that they were not taken from Kirkland's Statics? A. I am not giving an opinion like that you are trying to elicit from me at all. My conclusion is, that it was not by any means certain that they had been taken from Kirkland's Statics.

Q. You say Kirkland's book seems to be culled from a large number of text-books? A. I think so.

Q. From Magnus, Wormell, Cherriman, and so on? A. No; selections have not been made from Cherriman, for, at the time of the publication of Mr. Kirkland's book, Cherriman's had no problems connected with it.

Q. Tell me the order of subjects in Cherriman's book? A. Resolution of Forces. You will notice a difference in the order of the first two, but the difference is of no moment at all. It is here—Resolution of forces, then triangle of forces.

Q. But in Kirkland, it is Triangle of Forces and then Resolution of Forces? A. That is no matter at all.

Q. What is the next? A. Then Moments, then Centre of Gravity, then Mechanical Powers—that would be pulleys—and then Virtual Velocities.

Q. Do you know that Dr. McLellan learnt his Statics from that book? A. It was my impression, Dr. McLellan is a University man, and it is my impression he did gain his first knowledge of Statics from this work.

Q. You say in regard to most of the questions in the Arithmetic Paper, the principle is the same? A. I do not know that I used that expression.

Q. Have you any doubt that these questions were taken from the Examination Papers of Dr. McLellan? A. I am perfectly sure I am not going to say I am of the opinion that they were taken from the Examination Papers of Dr. McLellan.

Q. Do you suppose it possible or probable that those questions could have been set by Dr. McLellan, he having published a book, and not have been taken from that book? A. It is quite possible.

Q. Is it probable? A. Well, the probability I do not know. It is quite possible, and I would almost say it is quite probable, because an examiner gets into a certain run of questions, and it is exceedingly difficult to get out of it.

By Mr. Glashan.

Q. Is there really more distinction in principle between triangle of forces and resolution of forces, than between 2 and 2 make four, and twice 2 make 4? A. About the same difference.

Q. You are aware that there are two Schools of Mathematicians in England in regard to Natural Philosophy? A. Yes.

Q. Does not Magnus take part of what is generally called Statics under Dynamics? A. Yes, he does.

Q. Look at the order of questions on the paper or in Kirkland's Book. Is this the order—Composition and Resolution of Forces, Principle of Moments, Centre of Gravity, Mechanical Powers, Ratio of the Power to the weight in each, and a simple statement of the Virtual Velocities? A. That is the order.

Q. Read from the authorized Programme? A. "High School Programme and Regulations for Intermediate Examinations. Natural Philosophy:—Composition and Reso-

lution of Forces, Principle of Moments, Centre of Gravity, Mechanical Powers, Ratio of the power to the weight in each."

Q. Is that the order in the paper? A. Yes.

Q. The paper, then, is simply composed in the order of the Official Programme? A. Quite so.

The Inquiry was then adjourned until to-morrow.

SATURDAY, Nov. 17, 1877.

The inquiry opened at eleven o'clock.

The Hon. ADAM CROOKS, recalled, said:—

Mr. Campbell seems to have rather objected that no reply was received to applications of his, having been refused. One was in reference to the correspondence in reference to authorizing certain proposed text-books; and the grounds of the refusal were given both verbally and in writing, and were communicated to that firm. I refer to Messrs. Campbell & Sons, not understanding why it was that authorizations for particular text-books were refused. I refer to the evidence as reported in the *Globe*. I may say that as to all applications as to the authorization of particular text-books—from the time I took charge of the Department until I addressed the letters on the 27th and 28th of May, to three booksellers—my answer to all was, that I did not propose to deal with the question of authorizing particular text-books until the general policy was finally settled. I also gave that answer verbally to Mr. Lovell, who seems to have come from Montreal on the same errand. As to the other points, my refusal to give the list of trustees of the different school corporations throughout the Province, I acted in reference to all applications of that kind upon the report of my deputy, who stated that there were objections to that application being entertained, and upon that I both verbally and by letter refused to accede to the request. The deputy's objections were practical in their nature and I coincided in them.

BY MR. HUGHES.

Q. Did Adam Miller & Company receive those lists? A. No such application was ever made to me by Adam Miller & Company. There must be some mistake, because the *Journal of Education* had no subscribers; it was distributed gratuitously. The *School Journal* and the *Journal of Education* were published for three months, I think, contemporaneously.

BY MR. DAVIN.

Q. Is that letter, produced, your letter. A. Yes.

Q. Is that Mr. Marling's signature, and is that the letter you instructed him to write? A. Yes.

Letters of the 25th of April, 1877, and 8th of March, 1876, produced:—

"EDUCATION DEPARTMENT (Ont.),
"TORONTO, 25th April, 1877.

"DEAR SIRS,—In reply to your letter of 19th instant, with reference to being furnished with a list and post office addresses of the different school trustees, I find that I could not comply with this request without entailing a large amount of labour upon the staff of the Department, which I cannot do. It would be necessary to specially compile a list in order that your request might be complied with.

"I am,
"Yours truly,
"ADAM CROOKS,
"*Minister of Education.*

"Messrs. James Campbell & Son,
"Booksellers,
"Toronto."

"DEPARTMENT OF PUBLIC INSTRUCTION FOR ONTARIO,

[No. 4365 Cx.] "EDUCATION OFFICE,
"TORONTO, 8th March, 1876.

"GENTLEMEN,—I have the honour, by direction of the Minister of Education, to state in reply to your letter of the 20th ult., that it has been the invariable practice of the Department to decline to furnish the lists of the School Sections of the Province and their Post office addresses.

"This request involves important considerations beyond the scope of the object that you require this information for, and if it is granted at all, it will have to be given to all booksellers in Canada for the legitimate purpose of their business.

"Parties wishing to communicate with the School Trustees can do so by advertisement in the *Journal of Education*—a copy of which is sent to each School Section in Ontario.

"I have the honour to be, Gentlemen,
"Your obedient servant,
"ALEX. MARLING,
"*Secretary.*

"Messrs. Jas. Campbell & Son,
"Publishers, &c.,
"Toronto."

Q. In the letter of the 8th of March, the request of Mr. Campbell is declined because it would be necessary to compile a list in order that the request might be complied with? A. Yes. That was the objection which the deputy reported to me on that.

Q. You see there is a discrepancy? A. Yes, because in the interval my own impression was, that what were supposed to be objectionable features did not exist, but when it came to the last application, the deputy still reported to me there was that practical difficulty.

Q. In the letter of the 8th of March, it is stated that a copy of the Journal of Education is sent to each School Section in Ontario. Do you know that when the Journal of Education was stopped and the Canada School Journal took its place as the Educational organ, the list of subscribers was handed over to Adam Miller and Company? A. I personally knew nothing of the practical management—of the detailed management, that is—of the Journal of Education—that was left with other specific matters entirely to the Deputy Minister. I only know that I required that the proposed matter in the Journal should not be published until I had the opportunity myself personally of looking it over. I know nothing of the arrangements which attended its distribution.

HENRY JAMES CLARKE, sworn:—

BY MR. HUGHES.

Q. You are a publisher? A. Yes.

Q. Do you publish some text-books for use in the public schools of Ontario? A. Yes.

Q. Do you know that there are two methods proposed with reference to the copyright of books—one that the copyright should be held by the Minister of Education, or the Education Department, and the other that the copyright should be held by the publishers who produce the book. Do you believe that the method of having the copyright held by the Minister of Education is practicable? A. No.

Q. You have had some experience in connection with that plan: it was suggested that you should surrender certain copy-rights? A. Yes.

Q. You originally published Smith and McMurchy's Arithmetics? A. Yes.

Q. When the copyright was surrendered, was the price lowered? A. No.

Q. After you surrendered the copyright, and other publishers were allowed to publish the book—three other publishers or so? A. Three, I think.

Q. And the combination amongst the publishers did not lower the price of this book? A. It did not.

Q. Did it improve the mechanical execution of the book? A. I think not.

Q. It has been stated that the prices fixed by the Minister of Education during the present year have increased the cost to the consumers. Is there any book on the list which has been increased in price during the present year by the action of the Minister of Education? A. Not increased in price—no particular book, that I am aware.

Q. Do you know any book authorized by the Minister of Education which in your opinion is too high—costs too much at the present time? A. Yes. I think that Hamblin Smith's Arithmetic is too high.

By the Commissioner.

Q. How much is it on the list? A. $1.

By Mr. Hughes.

Q. Would you consider eighty cents too dear for that book? A. I should.

Q. Do you know any other book, the price of which you considered too high? A. I think that Mason's Grammar is too high.

Q. You think that Mason's Grammar would be too high at 75 cents; before its authorization into Canada, what was the price? A. $1.

Q. So the Minister of Education lowered the price 25 cents. A. Yes.

By Mr. Davin.

Q. You are aware that Adam Miller & Company are the publishers of the *Canada School Journal*? A. I believe they are.

Q. Does that give them, or does it not, an advantage over other publishers in regard to the text-books, and other books connected with this Institution? A. I should say so.

Q. You told Mr. Hughes that Hamblin Smith's Arithmetic is too high—what do you mean by that? A. I mean that, considering the circulation and cost of production, it might be sold for considerably less.

Q. Do you mean that the circulation of it is very large? A. I judge that it must be.

Q. The circulation of the authorized text-books must be very large? A. Comparatively large.

Q. You are familiar with Smith & McMurchy's Advanced Arithmetic? A. I have it in my pocket.

Q. What is the price of that? A. Fifty cents.

Q. What is the minimum? A. There is no minimum.

Q. How many cents more would the getting up of Hamblin Smith entail on the publishers of that book? A. I can hardly say exactly. I should say about five cents more—net cost, I mean.

Q. As to Mason's Grammar, you say seventy-five cents the maximum, and sixty cents the minimum are too high? A. That is my opinion.

Q. I suppose considering its circulation and the cost of production? A. Yes.

Q. As an authorized text-book, it must have a very large circulation? A. I have no doubt of it.

Q. Look at that Grammar—the Analytical Grammar, Miller's Analytical and Practical English Grammar—what is the price of that? A. 37½ cents retail?

Q. There is no minimum price for that? A. No; there is one price fixed for those books, of which the Department has the copyright.

Q. How much more would Mason's Grammar cost to produce, than that per volume? A. Mason's is a very superior book to this—I should think ten cents per volume, net cost.

By Prof. Young.

Q. You spoke of Hamblin Smith's Arithmetic—is that really an authorized book, in point of fact? A. It is on the list, Schedule A.

Q. Is there any mark opposite it? A. Yes—"Conditional on adaptation to Canadian Schools."

Q. Has any adaptation been made? A. I understand so.

Q. By whom? A. By Mr. Kirkland, I think.

Q. Has that been sanctioned? A. As I understand. I have not seen any authoritative statement, but it has been always sold as authorized.

Q. Has any public announcement been made that it is authorized? A. Messrs. Miller publish it on their list as authorized.

By Mr. Davin.

Q. Was there any demand for Mason's Grammar, when it was one dollar A. I never heard of it.

Q. If it was not an authorized book, would you have wished its publication? A. Certainly not.

Q. Or of Hamblin Smith, if it was not an authorized book? A. After Dr. McLellan's letter, we would, but not before.

Q. After Dr. McLellan's letter, why would you do it? A. It was so strongly commendatory that there is no doubt it would find its way into the schools.

Q. Do you mean that there would be no doubt it would be authorized? A. I do not say that.

Q. Is it not contrary to law to use a book in the schools that is not authorized? A. Yes.

Q How could it get into the schools, then? A. Such things are done.

Q. How could it get into the schools if it were not authorized? A. I do not know how; but it is the case.

Q. Do you know of your own knowledge? A. By report; by statements of teachers; not personally.

Q. Do you know that there is a large circulation of books not authorized, which could be only accounted for by students in the schools using them? A. Yes.

Q. Name one of the books? A. The Examination Papers of McLellan and Kirkland.

Q. What other book? A. That is the one prominent in my mind.

Q. Do you know anything about Swinton's Language Lessons? A. Yes; that has a large sale.

Q. Do you know any other? A. I could not recollect any at this moment.

Q. I suppose that you do not get any intimation from any one, months beforehand, when a book is going to be authorized? A. I should like to.

Q. You have never got it, have you? A. Never.

By Dr. McLellan.

Q. On what do you found the opinion that it is contrary to law to use an unauthorized book? A. On the published regulations.

Q. Does the law prevent teachers or students buying any books they please? A. Certainly not.

Q. The law only forbids a teacher forcing an unauthorized book on the pupils? A. Yes.

Q. But the public has a right to buy any book he likes? A. Yes.

Q. You wrote a letter to the Department, calling the attention of the Minister to the fact, that I was about to publish a book of problems? A. Yes. That you had published it.

Q. You were publishing a book of problems at the same time? A. Yes, we had it in course of publication.

Q When you state that Hamblin Smith's Arithmetic has a very large circulation in the schools, what is your reason for doing it? A. Because the circulation of the Ad-

vanced Arithmetic has so largely decreased since the decrease in the price of Hamblin Smith's.

Q. Would not that be accounted for by the publication of the Examination Papers in Arithmetic. A. It might.

Q. You are not aware of the fact, that the course gone into, in the Public Schools in Arithmetic is included in your small Arithmetic of Smith & McMurchy? A. I am not aware of it. I am only speaking of the previous and present sale.

Q. If that is the fact, is it likely that students would purchase a book, produced at a time when they can get a book and cover the cost at thirty cents or twenty-five cents? A. I do not know. I know that the sale of Hamblin Smith is very large.

Q. Do you know that it is not used in the Public Schools at all? A. I do not.

Q. In the High Schools they would have the right to use it? A. I do not understand that.

Q. The regulations do not prevent students and teachers from using unauthorized books, do they? A. I always understood so.

By Mr. Hughes.

Q. You state that you believe that the *Canada School Journal* gives Adam Miller & Company a greater power with the teachers than the other publishers possess. Is there anything to prevent you or any other publisher starting a school journal for yourself? A. Certainly.

Q. What is it? A. The fact that the *Canada School Journal* is the authorized organ of the Department, which also gives it immense power.

Q. Was it the authorized organ, when it started? A. I believe not.

Q. There is nothing to prevent any publisher who chooses to advertise in any way he wishes in the *Canada School Journal?* A. Nothing.

Q. One wholesale publisher does advertise? A. I believe so.

Q. Do you mean that the editorial part or the news columns of the Journal contain any recommendations of Adam Miller's books? A. I do.

Q. Can you state any such recommendation that has appeared? A. Yes.

Q. What book? A. McLellan's Examination Papers.

Q. In the news, or editorial columns? A. In the book reviews.

Q. Is that an authorized book? A. No.

Q. Can you name any authorized books? A. "How to Read" is an authorized book, I believe. There is also a review of that.

Q. Have you issued lately a text-book for Prof. Cherriman, with examination questions by Mr. Baker? A. We have.

Q. Did you submit that to the editors of the *Canada School Journal* for editorial notice? A. Yes.

Q. I believe that it was too late for the last *Journal*? A. I am not aware.

Q. Do you know how much copyright is paid by the publisher of Mason's Grammar? A. I do not.

Q. Are you in a position to state that the cost of it would simply be about ten cents more than the cost of the Advanced Grammar by Dr. Davies? A. Judging from the general amount paid for English copyright,—that is what I go upon—I thought it too high.

Q. On a small book like the Primer, what is the amount? A. I think it is three pence per copy; but I am not so positive. I know what we pay for our own copyright.

Q. And you do not know the amount paid on Mason's—you cannot speak positively? A. Not positively.

Q. You state that a large number of Swinton's have been sold; can you give an estimate? A. They come in by the hundred or the gross, as the case may be.

Q. Do you know it is for the teachers of the Province that it is recommended? A. I believe so.

Q. Would you consider 5,000 a good sale? A. I should think it a good sale.

Q. And you think it is more than that? A. I should judge so by the amount passing through our hands.

Q. If not more than 5,000 or 6,000, it might be purchased only by the teachers? A. I doubt it. I doubt that all teachers possess a copy.

Q. It might be purchased simply by the teachers? A. Barely possible.

By Mr. Davin.

Q. Before McMurchy's Advanced Arithmetic, how many have you sold in the last six months?. A. Our number from January to June was 985, but I imagine that from July to December it will be very largely increased.

Clarke Moses, sworn:—

By Dr. McLellan.

Q. What certificate do you hold? A. A First A.

Q What position are you now in? A. Public School Inspector.

Q. Are you familiar with arithmetic and arithmetical examinations. A. I am.

Q. Have you examined McLellan's and Kirkland's Book of Problems? A. I have.

Q. Have you examined the Arithmetic Paper of last July for examination for admission to High Schools? A. I have.

Q. Is there a part in the Examination Papers on entrance examinations? A. There is a part devoted to entrance examination papers.

Q. Did you observe any similarity between that paper of mine in July and any questions of mine in that book? A. No striking similarity; nothing to lead me to believe that there is any great similarity; nothing more than in any other book of problems.

Q. Are there any questions identical? A. No.

Q. Or strikingly similar? A. No.

Q. You consider that paper set entirely independent of the book? A. I do.

Q. Do you know how many candidates come up for entrance examination? A. About five thousand.

A. There is in that book a series of papers for third-class candidates? A. Yes.

A. Have you examined that series carefully? A. Yes.

Q. Did you compare it with the third-class paper for 1877? A. I did.

Q. Did you find any question identical with any in the book? A. I think not.

Q. Have you any notes on the subject? A. Yes.

By Mr. Davin.

Q. When were those notes made? A. This week.

By Dr. McLellan.

Q. Was there any question precisely identical? A. I found none identical.

Q. Are there any strikingly similar? A. You can find all the principles; but there is no striking similarity.

Q. Do you consider that the paper was set entirely independently of the book? A. I do.

Q. Have you any idea how many third-class candidates there were in July? A. About 5,000.

Q. Have you compared the paper for second-class teachers' examination, with the corresponding department in the book in question? A. I have.

Q. Did you detect any striking similarities between the questions on the paper and the questions in the book, or any of them? A. The paper of July, 1876, is incorporated in the book, and that contains a problem the same as in July, 1877. That is the only one I found.

Q. Does this paper of 1877 present any striking resemblance to that particular book, which contains papers given for practice for candidates for second-class certificates? A. No.

Q. Are you of the opinion that the second-class paper was set entirely independently of the book in question? A. I am.

Q. Do you know how many candidates there were for second-class examinations? A. One thousand and twenty-eight candidates for second-class alone. There would be upwards of two thousand for second-class and intermediate, who wrote on the same paper.

Q. The first-class paper contains some questions very similar to those in the text-book; is it your opinion that the paper might have been set without reference to the book at all? A. It might.

Q. Are those questions found on preceding Examination Papers? A. The second problem is found, I think, on the First Intermediate—either the first or second.

Q. Not in the same words? A. No, but the same principle.

Q. Is any other problem found on preceding Examination Papers? A. The principles are found.

Q. Does not question No. 8 appear in preceding Examination Papers? A. I could not state positively regarding eight, but I can with regard to the second part of No. 10.

Q. Look at the second-class papers in 1876? A. It is similar to the third question on that paper.

Q. Just as similar as to the question in the book? A. Yes.

Q. Are all these questions referred to as almost identical with those in the book, common questions? A. Yes.

Q. There is equal similarity in preceding text books? A, Yes. There are no strange questions to me.

Q. Would you think that students who had possession of that Book of Problems had in fact the Examination Paper before hand? A. No, I should not think so.

Q. Do you know so as a matter of common sense? A. No, I do not.

Q. State what you mean? A. I do not think that they would have any undue advantage over other candidates.

Q. Do you think that it would be very difficult for any one to set an Examination Paper without any text-book before him? A thoroughly test paper, involving the main principles of Arithmetic, and avoid the type questions involved in that book? A. I think that it would be very difficult.

Q. You are familiar with Arithmetical text-books? A. I am.

Q. Do you know of any single book of problems which contain such a number of type questions as that book? A. I do not.

Q. Mr. Clarke said, Hamblin Smith's book is extensively used; how many schools do you inspect? A. Ninety-seven.

Q. About how many pupils have you in these ninety-seven schools? A. Between five and six thousand.

Q. Is Hamblin Smith's Arithmetic used in any of those schools? A. Not that I am aware of. I never saw one in the hands of any pupil.

Q. The teachers have them? A. Probably they might.

Q. But they are not in the hands of the pupils? A. I am certain that they are not.

Q. Can you account for that; has the price anything to do with it as compared with the elementary Arithmetic? A. I think that it would have.

Q. Do you think that the pupils of the public schools would buy that book when the other book would cover their course? A. No, they would not.

By Mr. Davin.

Q. Where is your school district? A. County of Haldimand.

Q. Were you sub-examiner last year? A. I was.

Q. Was that the first time you were? A. It was.

Q. Who appointed you sub-examiner? A. I do not know.

Q. From whom did you get the intimation that you were appointed? A. I received official information from the Department.

Q. What person in the Department wrote the letter? A. I think that it was Mr. Marling.

Q. You say that there is no similarity whatever between the Arithmetic Paper for July and the book of Dr. McLellan's? A. I did not say so.

Q. Do you see any similarity between the questions on the Paper and the questions pointed out in the book? A. Oh, yes, there is a similarity, of course.

Q. On what reasons do you base your opinions when you say that you consider the paper was set entirely independently of the book? A. I did not say that, I said it was possible it might be: that is the entrance, or second and third.

Q. You do not think that this first-class paper was set independently of the book? A. I say, possibly it might.

Q. Do you think it probable? A. Yes, probably it might.

Q. It is probable? A. Probably it might. It is altogether probable.

Q. When do you say that you made those notes by which you refreshed your memory? A. During this week.

Q. On what day did you make those notes? A. On no particular day; I examined the papers on Wednesday evening, I examined them on Thursday evening, I examined them on Wednesday morning, and I made some examinations this morning.

Q. That is to say, you examined the 1877 papers for first-class papers? A. No; I have reference to the whole examination for entrance, second and third.

Q. For first-class, second and third? A. Yes.

Q. For 1877? A. Yes.

Q. And you were speaking about papers in 1876—did you examine them too? A. I compared the papers for 1877 with those for 1876.

Q. You examined three Examination Papers for 1877, and three Examination Papers for 1876? A. No.

Q. How many papers for 1876? A. I compared the Examination Papers of 1877, the third papers and the entrance papers, I compared with the paper set for the entrance examination in Dr. McLellan's book.

Q. Did you examine the papers of 1876? A. Of course I did.

Q. Did you examine papers of 1875? A. I did.

Q. And of 1874? A. Yes.

Q. And of 1873? A. Yes.

Q. And of 1872? A. Yes.

Q. Did you go back further? A. I could not state.

Q. So you examined the papers of 1872, and 1873, and 1874, and 1875, and 1876, and 1877, since Wednesday morning? A. Yes.

Q. You have sworn that in the Examination Papers for second-class and intermediate, for 1877, there are no questions taken from the book on Examination Papers? A. I stated that I did not detect any.

Q. Is it true, sir, that there are none of these questions taken from that book? A. None that I am aware of.

Q. Can you give us the statement as to fact? A. I examined it closely.

Q. Did you, since Wednesday morning, read that book through? A. No, I did not. You can examine a problem without reading it through.

Q. Did you look over every page of it since Wednesday morning? A. I looked over the entrance, third and second.

Q. Who first spoke to you about giving evidence here? A. I do not know that any person spoke to me.

Q. Did any one write to you? A. No.

Q. Who asked you to come up here? A. Dr. McLellan.

Q. When did he ask you? A. He telegraphed.

Q. When did you see him when you came? A. I think that the first time was on Wednesday morning.

Q. What did he say to you? A. I do not remember.

Q. Did he tell you he wanted you to prove that the questions deposed to by Mr. Robertson for 1877, were not taken from his book? A. He did not ask me to prove that.

Q. Did he say anything? A. Yes, he said something.

Q. What was it? A. He asked me to make an examination of these papers. He did not ask me to prove anything, though.

Q. Not to show anything? A. No, except to show the results I arrived at.

Q. Was it Dr. McLellan who got you appointed Sub-Examiner? A. I do not think so.

Q. Was it Dr. McLellan who got you appointed Inspector? A. No.

Q. Where were you educated? A. The last place I attended was the Normal School.

Q. The Hamblin Smith book, you say, you don't find in your district? A. No.

Q. The schools which you inspect are not High Schools? A. No.

Q. Is not Hamblin Smith a book which would be used in High Schools? A. As regards the High Schools in my county, I know that it is not there. It is not used as a text-book in the High Schools.

Q. Have you gone to the High Schools? A. I am familiar with the High Schools.

Q. And you swear that Hamblin Smith is not there? A. Not used by the pupils.

Q. You told us, that in the Arithmetic Paper for second-class teachers, one question is to be found that is in the Examination Paper for first-class? A. Yes.

Q. Only one? A. There is another one :—the second part of the 10th. In the July paper of 1876, there is one the same as that in the July Paper for 1877, first-class.

Q. No more? A. There are others very similar.

Q. Is there any other? A. That is all I detected,

Q. You think that the candidates who had this book of Mr. McLellan's of Examination Papers, would not be prepared for the questions he gave? If a student had these Examination Papers of Dr. McLellan, would he have been prepared for the examination of 1877? A. He would not. The mere possession of the book would not prepare him.

Q. Would studying the book prepare him, sir? A. Oh, of course; undoubtedly.

Q. Is this book in use in your school section? A. It is not used by the pupils as a general thing; some pupils have it.

Q. In the schools? A. No, they use it privately. It is in the hands of quite a number of teachers.

Q. And some pupils? A. Comparatively few.

Q. Are there not some of your schools in which it is used? A. No; not as a text-book.

Q. When first did you see that Dr. McLellan published this book of Examination Papers? A. I could not exactly say.

Q. When did you first hear of the similarity between his Examination Papers for 1877, and this book? A. Through the columns of the *Mail*.

Q. You never heard it before? A. I never heard it before.

By the Commissioner.

Q. Would or would not a person studying the problems in this book cover all the ground of the Examination Paper? Take No. 32, the first-class Examination Paper in Arithmetic for 1877; if a person had studied the problems in this book, devoted to that subject, and made himself master of them, would he have covered all the ground this Examination Paper covers? A. I think it would cover all the principles involved. I would not be prepared to state that the candidate who had prepared that, would clear all the Paper, but it would contain all the principles.

By Mr. Kirkland.

Q. Have you prepared pupils for examinations? A. I have.

Q. Have you often anticipated questions afterwards asked by the Examiners? A. I have.

Q. To what extent? A. In Mr. Marling's inspection of the High School of Caledonia; when I was Mathematical master there, I think he came to the school about one o'clock, I taught the class in Algebra from eleven to twelve, and I explained to them the problem which Mr. Marling put on the board, and asked; before that I gave two problems identical in words and figures with those that Mr. Marling gave to the High School in Arithmetic. I can show you that, if I have Girdlestone.

Q. Is Girdlestone an authorized book? A. No.

By The Commissioner.

Q. Do you prepare for Mr. Marling's inspection also? A. Of course, I prepare for the Inspector, and also in the preparation of candidates for the Entrance Examination.

By Mr. Kirkland.

Q. You prepared pupils for the Extrance Examination? A. I did.
Q. You knew when it was coming off? A. Yes.
Q. State the results? A. I gave three problems that were on the paper; two were identical, and in the third was a difference in the quantities—in the numbers used.
Q. Have you the Entrance Paper? A. I have not.

By the Commissioner.

Q. What time are you speaking of? A. June, 1875.

By Mr. Kirkland.

Q. How many problems did you anticipate on that paper? A. Two were identical with the questions which I gave, with the exception of the simple word—"all."

By the Commissioner.

Q. What questions are you referring to? A. June, 1875, No. 1 and No. 7. These two were identical, and No. 4 is similar.

By Mr. Kirkland.

Q. Any other instances? A. In preparing myself for examination, the night before my Literary Paper came on, Mr. Carson and I were drilling each other in literature, and we came across the expressions—"objective" and "subjective;" and I remarked that that question might probably be on the paper; and it was on the paper.

By Mr. Davin.

Q. What paper? A. English Literature.

By Mr. Kirkland.

Q. Are there any other instances that you know? A. Those are the only ones that I recollect.
Q. Is it easy amongst teachers to anticipate a fair number of the questions? A. It is, provided that they are acquainted with the Examiner, that is, if they have seen previous papers set by him, and have seen him examine.
Q. Then they can readily anticipate a fair number of his questions? A. Yes.
Q. And that is often done? A. Yes.

By Mr. Davin.

Q. You say that it is easy for teachers to anticipate papers propounded by the Examiner? A. Not by all Examiners.
Q. If they know the Examiner? A. Not if they are acquainted with the Examiner; but if they are acquainted with papers set by him before.
Q. Were you educated at the Normal School? A. Yes.
Q. Under Mr. Kirkland? A. Yes.
Q. Was it his habit to prepare you before the examination by giving you questions in this way—by anticipating the questions, which you would be asked at the examination? A. I cannot vouch for Mr. Kirkland's examination notes.

Q. What occured ? A. Nothing.

Q. You tell us, that it is a usual thing for teachers, if they know the Examiner, in dealing with their pupils to anticipate his questions in the examination ? A. Yes.

Q. How did Mr. Kirkland do that ? A. I cannot speak for him.

Q. Were you not one of his pupils ? A. Yes.

Q. Did he give you out questions ? A. A variety of questions.

Q. Did they anticipate the questions of the examiner ? A. I cannot state regarding that, I presume that Mr. Kirkland would know.

Q. Did you go into the examinations in the subjects which Mr. Kirkland instructed you ? Were you examined in them ? A. Yes.

Q. Did the questions which Mr. Kirkland gave out to you, anticipate the examination questions, given to you in the examinatiou room ? A. I presume that some of them did. I have not the least doubt of it.

Q. You have told us, it was a very strange thing that you and your fellow student anticipated the question about "objective" and "subjective"? A. Yes.

Q. And the Examination Paper was in English Literature ? A. Yes.

Q. What is the difference between "objective" and "subjective"? A. Well, I was examined on that.

Q. What is the difference, sir ? A. I was examined on that.

Q. Could you not tell us the difference now ? A. I do not think that is a question to ask.

Q. What is the difference between "objective" and "subjective"? A. I refuse to answer.

ALEXANDER MURRAY, sworn,—

BY DR. MCLELLAN.

Q. Of what University are you a graduate ? A. Of Aberdeen.

Q. Did you obtain honours there throughout the whole course ? A. Yes.

Q. You were mathematical prize man, I believe ? A. I was.

Q. Have you had experience in teaching and examining ? A. I have.

Q. You have noticed the discussion in connection with the Natural Philosophy Paper in the second class examination ? A. I have.

Q. Have you made any comparison between the questions in that paper and the ordinary text book ? A. I have compared it with Magnus.

Q. Do you consider that a fair paper for the purpose of testing those candidates ? A. I consider it a very fair paper indeed.

Q. You have educated pupils on that subject ? A. Yes.

Q. Do you consider that any pupils trained in Magnus, and Twisden, or Cherriman, or any of those, would be just as well prepared for the examination as if they were trained in Kirkland ? A. I do not know some of those whom you mention. They are all ordinary questions.

Q. How many did you find in common with Magnus ? A. I found four of them in Magnus.

Q. Did you find any of the others anywhere else ? A. I found one or two in some of the other text-books.

Q. Do you consider that Kirkland's book contains a great variety of questions illustrating the few principles in mathematics that these pupils have to master ? A. It does.

Q. Do you know any other that contains as many ? A. Not within the narrow field prescribed for the examination.

Q. Is it a narrow field ? A. Very narrow.

Q. Suppose I and you were to sit down and make up a paper on Natural Philosophy without reference to any text-book whatever, would it be an easy matter to construct a paper and exclude the type questions in Kirkland ? A. It must be substantially the same questions.

Q. Would such a paper, constructed by an independent examiner, without reference to any particular text-book, be likely to present more questions similar to those in Kirkland than any other book ?—than in Magnus, for example ? A. Certainly.

Q. Why? A. Because Kirkland's questions are all within the range prescribed; the others contain questions beyond the range prescribed, and have fewer questions within the range than Kirkland.

Q. Admitted that the paper was constructed mainly or wholly on Kirkland as a basis, do you think that a proper thing to do as an examiner? A. I should not have been surprised as Kirkland is an authorized book. I should expect that the examination should be based on some authorized work. It would be very unfair if it were not.

Q. Suppose that I constructed riders as different as possible from those in the authorized text-book, with what reception would that be met in the High Schools? A. I do not think that it would be very satisfactory.

Q. I would be pilloried, would I not? A. I do not know, it would not be satisfactory.

Q. Do you consider that if an examiner were to set a paper wholly from a good text-book, and if pupils in the excitement of the examination and on the spur of the moment could solve any question from such a text-book, they would answer the requirements of the examination? A. If it had been a text-book long in use, they might.

Q. With reference to the Arithmetic, have you examined the Entrance Examination Paper in Arithmetic? A. I have not.

Q. Or the Third Class? A. I have not.

Q. Or the Second Class? A. I have looked at it.

Q. As a teacher, you use our Book of Problems? A. Yes.

Q. Did you detect any marked resemblance? A. I did not compare them formally; but I know them well. I know the first half and it never struck me.

Q. You know something of the first-class Arithmetic paper for 1877? A. Yes. I examined that slip which contained the questions.

Q. Does that paper contain any of the questions that are said to be very similar to the text-book? Are they common questions, to be found in all ordinary text-books? A. They are all common questions.

Q. Do you suppose that any student who had read the book beforehand, would be in the position of a pupil who was instructed by the examiner as to the questions he was given to set? A. Certainly not.

Q. You are acquainted with a good many Arithmetical text-books? A. I have seen a good many.

Q. And you are acquainted with this Book of Problems in Arithmetic? A. Yes.

Q. Do you know any book containing such a number of type questions, illustrating the principles of Arithmetic? A. I do not.

Q. Do you think it would be extremely difficult for any man setting papers independent of any text-books, to set a paper outside of those type questions? A. I should think so.

Q. Is the order of the subjects the same as in the programme? A. Yes.

Q. Is it not a natural order? A. It never struck me as being peculiar at all. It is a natural order.

By Mr. Davin.

Q. You are a graduate of Aberdeen University? A. I am.

Q. You say that a great number of these questions are type questions in Natural Philosophy? A. Common questions.

Q. And it would not be an easy matter to construct a number of questions excluding those? A. Excluding similar questions—questions involving the same principle.

Q. Must Mr. McLellan then, by a law of necessity, invariably repeat those questions, when he gives a paper on Statics? A. Of course, there are more principles involved; and you must repeat them substantially within a number of years.

Q. Then it is a very common thing for the gentleman examining, to construct his paper on the text-book? A. Certainly.

Q. And you have no doubt that those questions were constructed on the text-book? A. I do not know that as a matter of fact.

Q. You see the similarity between the questions on the Examination Papers and those in the book? A. Yes.

Q. You see that some of them are identical? A. Yes; or nearly so.

Q. And the order of the subjects is the same? A. I believe so.

Q. Have you any doubt that the questions were based upon the text-book? A. I never had any thought about it at all. It is based on the Official Programme, I suppose. It is very natural for them to do so.

Q. You say that it is a proper thing for an examiner to base his questions on the course of lectures given by a teacher? A. On the Official Programme and authorized text-book.

Q. And I understand you to say that these questions were taken from the text-book? A. I do not answer that.

Q. There are some questions which are found in the text-book? A. Certainly.

Q. That being so, in that examination of 1877,—an examination in which I understand the Examination Papers were scattered all over the country? A. They were.

Q. The Examination Papers being so similar to the questions in this book, did not that give the pupils in the Normal Schools an advantage over those in Hamilton, St. Catharines, London and elsewhere? A. I do not think so.

Q. They would have gone over this ground, would they not? A. I have no knowledge of what they do in the Normal School.

Q. If they went over the ground, would it not give them an advantage? A. I expect that all the students in other schools would go over the same ground.

Q. Over precisely the same ground? A. Yes.

Q. And get precisely the same questions? A. Not precisely the same; but substantially the same.

Q. The questions in Arithmetic are all common questions. Are they the same questions? Do you see the similarity? A. They are similar; some of them are.

Q. You say that it is very difficult for an examiner to give any variety of questions? A. I do not remember saying that.

Q. You say that he would repeat these questions in Natural Philosophy? A. In the course of time substantially, but not exactly.

Q. Do you know Mr. J. Clark Maxwell? A. I do not.

Q. Do you know Mr. P. G. Paik? A. I do not.

H. G. JAMESON, recalled.

BY MR. KIRKLAND.

Q. How long have you been a teacher? A. Five years.

Q. Do you hold a First Class Certificate? A. Yes, Grade B.

Q. You attended the Normal School in 1874? A. I did.

Q. You passed the examination in Algebra at the close of that year? A. I did.

Q. Have you the paper in Algebra with you? A. I have.

Q. How many questions are there on that paper? A. Nine questions on the Examination Paper of December, 1874.

Q. Have you any experience which would lead you to believe that a prudent examiner may anticipate questions? A. I have prepared students for Third, Second and High School Intermediate Examinations in Mathematics and Sciences, and I have invariably anticipated some of the questions—notably so on the June, 1876, Intermediate Examination, in which I anticipated fully 50 per cent. of three papers.

BY MR. DAVIN.

Q. Have you the paper for 1876? A. I have.

Q. Have you the questions which you gave out? A. I have some of them; but some I wrote on the blackboard.

Q. How many? A. In preparing No. 1, Natural Philosophy, Intermediate High School Examinations, June, 1876, I had given special drill on some of the questions.

Q. You are accustomed in preparing your pupils to give them out questions? A. I was.

Q. Where were you educated? A. At the Normal School, Toronto.

Q. Were you a pupil of Mr. Kirkland's? A. I was.

Q. Was it his custom to give out questions in that way? A. Yes. I taught as nearly similar to Mr. Kirkland as I could, in his subjects.

Q. He was accustomed to give out a number of questions? A. He was.

Q. What was his object? A. To improve us in the subject.

Q. What was your object then? A. To improve my students.

Q. Had those questions any direct reference to the examination? A. The ones I gave out had.

Q. Any reference? A. I hope they had; when I gave them out, I tried to frame them as much like what a good examiner would, as I could.

Q. With the view of getting the pupils to pass? A. Certainly.

Q. Was that Mr. Kirkland's object? A. I do not know.

Q. Did he ever state that it was? A. He never did.

Q. What year were you with him? A. 1874.

Q. Did you know Brown? A. I did.

Q. You attended the same class? A. I did.

Q. Did Mr. Kirkland give out a series of questions a few weeks before the examination for you to look up? A. All the session he was giving out questions, and it is possible that he did shortly before the examination.

Q. Did you attend the Chemistry class? A. I did.

Q. Did he give you a series of questions in Chemistry, three or four weeks before the examination? A. He gave us several series, extending up to some weeks before the examination.

Q. Did he tell you to pay special attention to them? A. No, he did not. If he had, I should not have missed the last question on the paper. He gave them out for us to do as we liked.

Q. Did he give out this question:—"What is the law of gaseous diffusion; what is the law of gaseous expansion by increase of temperature?" A. He discussed that fully in the beginning of the session.

Q. Were you in court when Mr. Brown gave his evidence? A. I do not know.

Q. Have you read the questions as reported in the newspapers? A. I have—most of them.

Q. As found in Brown's note-book? A. As purported to be found there.

Q. Were those questions given out to you some four weeks before the examination? A. I cannot say that all these questions were or were not, something similar to the question about the composition of ammonia was given out sometime before the examination.

Q. When Mr. Kirkland gave you out those questions some four weeks before the examination, did he tell you to look them up, and he would guarantee that they would cover the whole ground of the examination? A. He did not tell us that they would cover the whole ground. He made no remark that they would or would not in my hearing.

Q. What used he to say when he gave out the questions? A. "Take these questions, write them out, and bring them back"—on a certain day; sometimes he would say nothing, but simply put them on the table.

Q. He never told you to work them up? A. He expected that we would write out the answers and hand them in to him.

Q. You remember getting a number of questions before the examination? A. I do.

Q. Now, look at the Intermediate Examination Paper for 1876:—what questions did you anticipate? A. The first and second parts of question one.

Q. What else? A. I gave questions on forces acting in the directions of sides of a rectangle,—which is taken up in the latter part of the same question. In question three, I discussed that fully with my class, and gave questions similar to the next one, it is so common. On question four—it is not a common question—I gave one identical, except the weight of the man,—word for word excepting that. I think I gave 160 pounds instead of 180. Question five, I discussed fully with my class, and told them among other things, that it was a very important one to get up. Question seven, I discussed fully, and also told them it was an important one; and I gave questions so similar to the remainder, hat pupils would have no difficulty in seeing the similarity. Question eight, I of

course discussed fully, and the first part of question nine, also; so much of that paper, I had my students thoroughly drilled in.

Q. How long before they went up for the Examination? A. I was drilling them the whole time.

Q. How long before the Examination did you give them these questions? A. In the review, a week or two before the Examination.

Q. You gave them practically these questions? A. Yes.

Q. Did you take very full notes when you were attending Mr. Kirkland's lectures on Natural Philosophy? A. I did not take any notes.

Q. What used you to do when he gave you out the questions? A. If he gave them out in the room, I worked them. The papers he gave us in Natural Philosophy, and told us to work out, I have them almost all at home—with his remarks on them correct.

Q. When you were instructing your students, did you refer to Mr. Kirkland's notes as given you in the manner you described? A. Very often, I did.

Q. Read the first sentence in the preface to Kirkland's Statics? A. "The following pages contain the substance of the lectures on Statics, delivered to the students of the Second Division, in the Normal School, Toronto, during the past five years." I never was a member of the Second Division, under Mr. Kirkland.

Q. It is proved by the friends of Mr. Kirkland and Mr. McLellan, that the paper for 1877 is based on the Elementary Statics, or that it and the Statics are based on the same source; the Elementary Statics are based on lectures by Mr. Kirkland; would not the students of 1877, who attended Mr. Kirkland's classes have had an advantage over students at Hamilton, and other places throughout the country? A. I am not in a position to say whether they would or not. It depends upon what teachers they had.

Q. You swear that some two weeks before the examination of your pupils, you anticipated seven out of nine questions? A. I do not swear to seven whole questions; but the questions referred to when I went over them.

Q. Is it that you had something with reference to each of them? Is that all? A. I swear to what I said distinctly; the parts of the questions I referred to.

Q. Did you anticipate those questions? A. I anticipated the questions which I pointed out on the paper.

Q. Did you anticipate question nine? A. The first half.

Q. Did you ask it in that very language? A. I would not say the words of the latter part of the question; but the question in the form I would put it, would be, "Describe the common barometer, and point out the principle on which its action is based." It would be the very same idea.

Q. Did you give question seven? A. I did.

Q. In those very words? A. Yes. In those words.

Q. And the second part of the question? A. I do not say anything about that.

Q. Question five; did you give it in those very words? A. Yes.

Q. And you gave question four precisely as it is on the paper? A. Except the weight of the man.

Q. What was the weight of your man? A. I think 160 pounds.

Q. Did you give question three exactly as it is on the paper? A. I gave that exactly up to a given point.

Q. Did you give the wire? A. Not verbatum as it is here, but I gave a question so similar that students could find no difficulty with it.

Q. How much did you give of No. one? A. Up to the "forces".

Q. But following that? A. I would not swear I gave that in the very words, but I had my pupils to define those terms.

Q. So that of the first question, "state the principal of the parallelogram," the forces is all that you gave? A. In the very words.

By Mr. Kirkland.

Q. Did you read over the last set of questions in Chemistry, that you got in 1874, at all? A. I did not.

Q. You are positive? A. I am positive I never read them, on this account: that

some student told me that that question about nitrogen was on the paper, and he said, "you missed it because you would not bother with the paper."

Q. Why did you not read those questions? A. Because I thought that we had been taken thoroughly over the course, and I would not bother with Chemistry any more.

Q. If I had called especial attention to them, would that have been the case? A. It would not.

By Mr. Davin.

Q. Then those who attended to the questions came out well in the examination? The student who attended to the questions was better off with regard to nitrogen than you were? A. He was not, in regard to Chemistry.

Q. But was he in regard to nitrogen? A. I do not know, whether he was or not. He said that I missed it for not looking over the paper.

Q. Because it contained a question as to nitrogen? A. One question which I might have got otherwise.

Q. What marks did you take in Chemistry? A. Ninety per cent.

By Dr. McLellan.

Q. Look at the Euclid Paper, No. 13, same year, High School Intermediate Examinations, 1876, did you anticipate any of the riders to the propositions? A. I did.

Q. Are there any of the deductions on that paper, but riders, that you anticipated? A. There are:—The rider to question 2 I had fully discussed with the class; in question 3 there are two riders, two propositions of the First Book, both of which I had given the class in preparation for that paper; I had also given the rider to question 4.

Q. You are positive of that? A. I am positive of that.

Q. As to question 5? A. I had given that to my class—that a line joining the middle points was parallel to the third side. I had not given that it was equal to one half of it.

Q. Question No. 6? A. I had not given anything of that.

Q. Question No. 7? A. Nor of that. No. 8 is a deduction. I had given the general angle, the vertical angle, and one-half of the perimeter. I had given the general proposition, it would include the particular one.

By Mr. Kirkland.

Q. How many riders are there altogether? A. Eight

Q. How many did you anticipate? A. Six.

By Mr. Davin.

Q. I understand you to swear that, out of eight questions that were given your pupils in the Examination Hall, you anticipated six? A. I do not swear that I gave the six altogether. I mentioned one part of the rider five to Dr. McLellan, that I had not shown them; and also the eighth. Nine was the general statement, of which this is a particular proposition.

Q. But with that qualification, out of eight questions you anticipated six? A. Yes.

Q. Where did you get your deductions? A. I got them from Todhunter's Euclid, from Potts' Euclid, and some of them I got at the Normal School.

Q. Who was your teacher in the Normal School? A. Mr. Kirkland, for one session, and Dr. Carlisle for one session.

Q. You did not anticipate the questions literally, as they are here? A. I would not swear that; but a deduction is a deduction, no matter how it is worded.

Q. You do not swear to the words? A. No.

Charles John McGregor, sworn:—

By Dr. McLellan.

Q. Of what University are you a graduate? A. Toronto University.

Q. What standing did you take? A. I graduated First in Mathematical Honours, in 1854. I took the Gold Medal in Mathematics, and the Silver Medal in Physics.

Q. You have had much experience in teaching and examining? A. In teaching—not examining, except examining my own pupils.

Q. Has your attention been called to this Second Class Natural Philosophy paper? A. Yes. I have heard all the evidence.

Q. You have examined the questions on that paper. A. Yes.

Q. What was your opinion as to the questions? A. I think that they are very fair questions for the purpose intended—I mean more with regard to candidates for second-class certificates, and intermediate. I thought that they were very fair questions for such a class of pupils.

Q. Are they common to all text-books? A. They are of the usual style that I was accustomed to in beginning the study of statics.

Q. That is the order in which you were taught in the University of Toronto? A. It is the usual order.

Q. In the official programme? A. I think so.

Q. Did you compare the questions with those in Magnus? A. No; I had not the opportunity of seeing any text-book except Hamblin Smith and Kirkland. I had a copy of Todhunter.

Q. Did you find types of them in these books? A. I found similar questions in Todhunter and Hamblin Smith.

Q. What was your opinion of the paper for the purpose for which it was set—to test the pupils in the intermediate course? A. I thought that it was a very good one. I thought that pupils might wish it to be easier.

Q. It was quite difficult enough? A. I think so fully.

Q. What is your view as to the course in statics? A. In the High School, we generally get pupils when they are twelve years old; and they are expected to pass when they are about fifteen. It is extensive enough for them; but limited for pupils of a higher standing.

Q. Would you consider that a great number of questions could be set in these narrow limits? A. No; there are only a few subjects. There cannot be a great variety of questions. My reasons for thinking that, are these:—In the first place, we can only go as far as the Second Book in Euclid, and there is no trigonometry; therefore, we have to restrict ourselves to triangles and plane geometry; and to triangles for certain angles, isosceles triangles, right-angled triangles, and triangles of from 30 to 60 degrees, and probably equilateral triangles.

Q. Would it be wise on the part of the Examiner to go out of the beaten track of riders to display originality? A. He would not get answers from the pupils.

Q. Suppose that the Examination Papers, set for pupils in elementary work, were constructed on models from the text-book, or from any of the text-books, as a basis, would you consider that a proper thing. A. I should think so. I should be very much disappointed to find questions which they could not answer from the instructions in the text book, and the instructions of the master who would not go beyond the text-book.

Q. Does Kirkland's book contain a greater number than any other? A. It is the only one I am acquainted with that we can teach wholly to High School pupils. In Hamblin Smith, we have to select the great number of the problems regarding a knowledge of trigonometry or angles.

Q. Do you think that any one trained in Magnus, or Hamblin Smith, would be equally trained as if he were trained in Kirkland? A. I think that they would be able to answer any questions in Kirkland.

Q. Do you think that it would be possible to set a paper and avoid the type questions in Kirkland? A. Within the limits, it would be difficult. The riders may be changed, but not the principle.

Q. Did you examine the Entrance Examination Paper? A. No.

Q. Or the third-class? A. Yes.

Q. Did you compare the Third Class Paper with the practice set for third-class candidates in the Book of Problems? A. I did.

Q. Did you notice any marked similarity? A. I found that the only really similar question is the first. There is one similar in the text-book; that is in the Third Class Arithmetic Paper for July, 1877. As to the other questions on that paper, you can find a principle similar to them, I fancy, in all text-books.

Q. Do you consider then that the paper was set independently of the book? A. I

should imagine so. I do not see any reason why I should infer that it was selected from that book more than from any other.

Q. Have you any idea how many candidates there were for that examination? A. No,—except in my own county. There were 125 in that.

Q. Did you compare the Second Class Paper? A. Yes. The only really similar question I found was in No. 8, which was somewhat similar to one in the book, on page 177, exercise 9.

Q. But on stocks, that is a very common question? A. Yes.

Q. Do you think that the Examiner consulted the Book of Problems? A. Not more than any other book.

Q. You see the resemblance between the First Class Paper and the problems in the book? A. There are some resemblances. I find in other examination papers of previous years resemblances also.

Q. What resemblances? A. Just what you might expect in general examinations of that kind. The book contains all the examination papers, and it is from the book that I made the comparison. I find the second one, as found in the Second Class July Paper, 1876, and in the First Class Paper, of July, 1876, substantially the same in principle. The same principle is involved.

Q. Do you consider that a fair and thorough test of first-class candidates for certificates in Arithmetic. A. I think so.

Q. Do you consider that those students who had the book in their hands would have the Examination Paper in fact? A. No, but if the student went through the whole he should be able to answer it?

Q. You have read the problems? A. Yes.

Q. And have experience? A. The Book of Problems I had before me was an American book, by a person named Fish. The order is different; but it is a collection of similar questions.

Q. Do you know any book of Arithmetical problems that contains so great a variety of type questions in Arithmetic? A. No.

Q. Would it be an easy task for any examiner to set a paper which would wholly exclude the type questions, common in that book? A. I do not think that possible; or he must ask very simple questions.

By Mr Davin.

Q. I understand you to say that the questions in the First Class Examination Paper are similar to those to be found in Mr. McLellan's book? A. You can find questions in the book similar in principle to all of them. I think that nearly all include the previous examination papers.

Q. But you do not find that similarity in the second and third class papers? A. Not the exact similarity.

Q. You say that it is a proper thing that students should be instructed in the text-book as a basis? A. Decidedly. I mean pupils of the High School. We receive them from the public school about the years of eleven and twelve, and we are supposed to have them about three years. I have no experience in training candidates for second or third class certificates.

Q. Those questions in statics were then based on Kirkland's Statics? A. I have no doubt that they were; or on some other text-book. I would base them on Kirkland's Statics.

Q. You are aware that only four are found in Magnus? A. I heard that yesterday. I know nothing about Magnus.

Q. Is there any text-book, with which you are acquainted, in which the seven questions occur? A. I am not aware.

Q. You told us, as a distinguished University man, that the order is the same as that adopted in teaching at the University? A. Practically.

Q. Is that book produced, Mr. Cherriman's book? A. He published it after I left the University. We used, I think, Snowball's and Hernshaw's Analytical Statics.

Q. You have not brought Mr. Fish's book? A. No. It is a collection of problems—not selected, but all mixed up.

By Mr. Kirkland.

Q. As an experienced teacher, is it usual to anticipate a fair number of problems on any examination? A. I have not given that a consideration. I would not like to answer that question. I seldom have anticipated the exact questions; but I have given questions similar in principle.

By Dr. McLellan.

Q. You heard it proved that there were over four hundred problems in Kirkland, and only something like two hundred in Magnus? A. Yes. I looked upon it as a great boon that Mr. Kirkland had published this book with examples.

Q. If you found four questions in a text-book containing two hundred problems, would you expect to find six of them in a text-book containing four hundred, covering the same range? A. Decidedly.

By Mr. Davin.

Q. And in the same order? A. I would expect to find the riders placed under the subjects taken in order.

Q. If the examiner had any access to the book? A. He would select the subject under the order, and put his rider under it.

By Dr. McLellan.

Q. Has not the examiner followed the order of subjects laid down? A. Yes, exactly.

William O'Connor, sworn:—

By Dr. McLellan.

Q. What University are you a graduate of? A. Of the Queen's University, in Ireland.

By the Commissioner.

Q. Which one? A. Queen's College, Cork.

By Dr. McLellan.

Q. What standing had you? A. I obtained a Mathematical Gold Medal.

Q. Have you any experience in teaching? A. About ten years.

Q. Have you compared the Natural Philosophy Paper? A. I have compared the Natural Philosophy Paper given at the second-class examination last July, with several text-books. The first question appears to be found in Tomlinson's Mechanics, Horton's Mechanics, Hamblin Smith's Statics, Kirkland's Statics, and Torrance's Mechanics.

Q. Not in precisely the same figure? A. The same principle.

Q. And about the same in language? A. Yes. Question 2, I found in all these books also—or at least similar questions involving the same principles exactly.

Q. Question 3? A. I have the pages on which I found the various questions.

Q. You found them all in different text books? A. I did not find the four very fully explained in some of the books. I found all these questions in several text-books not in exactly the same words, but involving the same principles. Hamblin Smith's Statics and Torrance's Mechanics, and Galbraith's and Horton's Mechanics; and even in Tomlinson's Mechanics. In some cases, the resemblance is very striking, that second question, for instance: "Show by a diagram," etc., the diagram is given in Tomlinson's and Horton's.

Q. You did not examine Magnus? A. Not very fully; but that question with the diagram is very fully given in Tomlinson's.

Q. What text-books did you use in preparing your pupils for this examination? A. Some of them were present at the examination for which this paper was used.

Q. What text-book did you use? A. Some used Hamblin Smith's Statics and some

used Horton's Mechanics. I think that none of them were supplied with Kirkland's Statics previous to the examination.

Q. Did they all pass in Natural Philosophy? A. Yes.

Q. How many were there? A. I do not remember. I know that no one was rejected in Natural Philosophy, ; but whether you examined all the papers, of course I could not say.

Q. Then a pupil taught thoroughly on Magnus or Galbraith, and Horton would be likely to do well? A. That is my experience: that the pupils prepared from Hamblin Smith's Statics or Horton's Mechanics could pass this examination at which this Examination Paper was used.

Q. For the class for which these papers are set, would it be prudent to select or to construct unusual riders to the propositions? A. The pupils for whom these papers are intended, are generally young. It would be generally desirable to select questions similar to those found in ordinary text books. Of course they would be very like those found in ordinary text-books, and would especially, I think, be likely to resemble any text-book prepared in Ontario, inasmuch as anyone writing the text-books in this country, would know what the requirements of the programme were.

Q. As a matter of fact, if any text-book is authorized by the Department, you expect that the examination would be based mainly on that? A. I should expect it to be very like.

Q. So if the examination is constructed wholly from any of the text-books? A. I see no objection. As a matter of fact, they are like the text-books.

Q. Have you seen Kirkland's Statics? A. I have since the examination.

Q. Do you consider the course wide? A. It is very narrow, especially as the pupils are not supposed to know much mathematics.

Q. Can you construct a great variety of riders—could you construct riders essentially different from those found in the ordinary text-books? A. It would be impossible on this limited course required for second-class.

Q. Does Kirkland's contain a great variety within such narrow limits? A. I think that Kirkland's Statics goes over the ground required for second-class teachers more fully than any other book that I have seen, and therefore a paper intended for second-class teachers, set by any examiner, would be more likely to resemble Kirkland's Statics than any other book I have referred to.

Q. Did you compare the Entrance Examination Paper in arithmetic of last year with the problems in arithmetic? A. I am very familiar with the Book of Problems. I have read the entrance examination to High Schools.

Q. Did you notice any marked similarity between them and the book? A. There were questions of a similar style, but nothing marked.

Q. Would you imagine that the examiner had the book before him when he constructed it? A. No. He might have constructed it without any book before him. If I were to construct an examination paper, the questions would be very similar.

Q. Did you see the third-class paper? A. I did.

Q. Did it strike you as having a marked resemblance? A. There was no marked resemblance, I thought.

Q. Did you examine the second-class and intermediate papers? A. Yes.

Q. What was your impression in regard to the book? A. I thought that there was no unusual resemblance.

Q. You are acquainted with various arithmetics? A. I have used a great many books on arithmetic.

Q. Do you know any book that contains as great a variety of the various type questions as Kirkland? A. I have seen no book on arithmetic that contains so great a variety of problems as this book of Dr. McLelland and Mr. Kirkland.

Q. Would it be easy to set a paper independent of any text-books? A. I think it would be impossible to set a paper on Arithmetic which would exclude those or similar questions—questions showing a stronger resemblance than that; it would seem to be copied.

Q. Did it strike you that the Examiner had copied these questions? A. I should say that the Examiner must have been acquainted with questions similar to those in the book; but it did not strike me that he had any book.

By Mr. Davin.

Q. Read question 2? A. "Show by a diagram how it is possible for a sailing vessel to make headway in a direction at an angle of 60 degrees with that of the wind."

Q. Now, read what is in Tomlinson's? A. It begins on the middle of page 9:—"We may, however, take a case where the sail is supposed to be stretched so as to form a plane surface; and, neglecting the action of the rudder, as well as that of any tide or current in the water, let us consider the force of the wind only. Let A B (fig. 4), be the length or keel of a sailing vessel and let the right line M N represent the projection of a sail, supported at O against a mast. Let O P represent, in magnitudes direction, the force W with which the wind acts upon the sail. Construct the parallelogram O, C, P, D, of which O P is the diagonal. This force O P is evidently decomposable into two other forces; the first O C in the direction of the plane of the canvas and producing no effect in advancing the vessel, the second O D perpendicular to the sail, which is the only force which presses on the sail and gives motion to the vessel. But O D may also be decomposed into two other forces; the one O E in the direction of the keel or length of the vessel and which tends to advance it in the direction of the arrow; the other O F acting at right angles to the length of the vessel so as to urge it sideways. The form of the vessel enables it to offer a great resistance to the latter force and very little to the former; so that it proceeds with considerable velocity in the direction O E of its keel and makes very little leeway as the sideway direction O F is called." This is the answer to the question.

Q. Where is the question? A. This is the diagram called for. This is the answer to the question.

Q. Read what is in Kirkland? A. "Show how it is possible for a sailing vessel to make way in a direction at right angles to that of the wiud."

Q. Is there anything like that in Tomlinson? A. There is not; but I have seen the question in other text-books.

Q. In Tomlinson's the question is not to be found? A. It is not.

Q. It is found in Kirkland? A. Yes, the question and the explanation are both found in Kirkland.

Q. And the diagram? A. Yes. The diagram is in both.

Q. All these questions are not found in Tomlinson? A. No. Tomlinson's includes other portions on the subject. Tomlinson's book is not especially arranged with a view to the Ontario Programme. It contains other matter besides our Statics.

Q. You say, that if a text-book is authorized, you would expect that the Examination Papers would be like it? A. Yes—for beginners.

Q. You would expect, that if a text-book were authorized—if Kirkland was authorized as it is now—if it had been for a long time, you would expect precisely such a paper as that? A. Yes; even if Hamblin Smith was authorized, or Horton.

Q. But all the questions are not in Hamblin Smith's? A. I think that they could be answered from it.

Q. But they are not in Hamblin Smith? A. I think there are six.

Q. Point out the six questions? A. I would consider them the same in principle. "State the triangle of force":—that is fully explained on page 27.

Q. Have you a rider to that question? A. Something similar on the opposite page, 26:—"A weight of 10lbs. is suspended by a string A B from the fixed point A. A force F acts horizontally at B on the string. What must be the maguitude of F in order that the angle A B F may be 120°."

Q. Will you say that rider is the same as the rider on the paper? A. Yes, precisely. The wording is different, but the substance is the same.

Q. Are two strings the same as one string? A. A force pulling it horizontally is the same as the two strings. It is preciesly the same question.

Q. Will you say that those two questions are the same. A. If I were to make a diagram, I would make the same diagram.

Q. Have you Kirkland's Statics? A. Yes.

Q. Read the rider in Kirkland? A. "A weight of 24 lbs. is suspended by two flexible strings, one of which is horizontal and the other is inclined at an angle of 30° to the vertical direction; what is the tension in this string."

Q. From which book would you say that question was taken by the Examiner? A. I have no reason to suppose that he took it from either book.

Q. Suppose that he took it from one, which would you infer he took it from? A. I have no reason to suppose that he took it from either.

Q. Suppose that he took it from one, which would he have taken it from? A. That is a question of probabilities, I suppose.

Q. No. 3: What is meant by the moment of a force with respect to a given point: Where have you that in Hamblin Smith's statics? And then you have a rider—"The whole length of each oar of a boat is 10 feet, and from the hand to the rowlock the distance is 2 feet; each of four men sitting in the boat pulls his oar with a force of 60 lbs; supposing the blades of the oar not to move through the water, find the resultant force propelling the boat?" Have you that question in Hamblin Smith? A. I have something similar on page 89, question 12.

Q. "How would the mechanical advantage of an oar be modified by lengthening that part of it which is within the rowlock?" Is that it? A. Yes.

Q. And you say that is as like as the question in Kirkland? A. No. It is not as like; but it regards a similar principle, any one who understood the one, could do the other; and I think there is something on the principle of moments, at page 71.

Q. There is no rider there? A. It is a problem to be done; it is not book work.

Q. Question 4.—"A beam, the weight of which is 120 lbs., acting at a point one-fourth of its length from the foot is made to rest inclined at an angle of 45° against a smooth vertical wall (the other end resting on the ground) by a horizontal force applied to the foot: find this force." Where is that in Hamblin Smith? A. There is a similar question, I think, on page 124, question 25.

Q. "A uniform beam rests against a smooth peg A, and has its lower extremity connected by means of a strength of given length with a point B in the same horizontal line as A. Determine the length of the beam that it may rest at an angle of 45° to the horizon?" Look at the problem in Kirkland, page 65, question 4, "A ladder, the weight of which is 90 lbs., acting at a point one-third of its length from the foot is made to rest against a smooth vertical wall, and inclined to it, at an angle of 30° by a force applied horizontally to the foot: find the force?" Is the question in Kirkland more like the question in the Examination Paper than the question in Hamlin Smith? A. Yes, I think so. Still they involve the same principle.

By Dr. McLellan.

Q. Look at page 140, question 4, in Hamblin Smith? A. I did not examine that.

By Mr. Davin.

Q. Read the question in Hamblin Smith? A. I think that those three questions involve precisely the same principle. They are precisely the same question in fact.

Q. The question is whether all these questions are to be found in Hamblin Smith? A. They are—those. It is exactly the same question. The whole of the three questions have evidently been derived from the same source; but what that is, I cannot say.

Q. What part of Ireland did you come from? A. Oh, they will put that in the papers if I tell you.

Angus McIntosh, sworn:.

By Mr. Kirkland.

Q. In Mr. Slater's evidence, he states that you complained that I did not take up algebra sufficiently for the last six months! A. I made no such statement as that.

Q. Did you make any statement that he might construe into that? A. I am not sufficiently acquainted with him to know what meaning he might attach to common expressions.

Q. Any that he could construe in that way! A. I think not.

By Mr. Davin.

Q. You used common expressions? A. I spoke to him.

Q. What common expressions did you use in reference to this matter? What have you sworn that Slater was wrong about? A. That I made any complaint to him, or any one else, about Mr. Kirkland teaching algebra.

William Oliver, sworn:—

By Mr Kirkland.

Q. You are a graduate of the University of Toronto? A. I am.

Q. Gold medalist in Physical Science? A. I am.

Q. How long have you been a teacher? A. From fifteen to eighteen years.

Q. Have you been an examiner in the University of Toronto? A. I have.

Q. In Chemistry? A. In Chemistry.

Q. Have you examined the Chemistry Paper for July, 1874, and compared it with Brown's notes? A. I examined it just as it appeared in the daily papers—the questions as they came together.

Q. Did you examine those questions at any person's suggestion? A. I did not.

Q. You were telegraphed to come up here? A. I was.

Q. And you proceeded then to examine the questions? A. Yes, after I got through my own proper work. I only examined them last evening from about six to twelve o'clock.

Q. Did you find question three anywhere else? A. I have found the whole of it in one book, and parts of it in two others.

Q. Read the question as you found the whole of it? A. It is in the Edinburgh University calendar. The question, as it is here, reads:—"How may aqueous solution of ammonia be formed from chloride of ammonium? Describe the process, and represent the chemical action by means of an equation." Those are the words as contained in the book. There is no difference in the question. It is the University calendar for 1871-2, page 243; examination of 1st April, 1871, Edinburgh University.

Q. The next question in order—did you get that? A. Parts of it.

Q. To what extent does that question resemble Brown's question? A. There is only one part of that question which resembles Brown's question, only the middle part that is, of No. 4.

Q. Were those questions taken from any common source where there is anything in common between them? A. I have the latter part of the question in another source. In Barff's Chemistry, page 288, there is this question:—"How would you prove that carbonic acid consists of carbon and oxygen?" It is the last part of question four, word for word up to that point. "How is carbonic acid usually prepared?" That is the first part of the question, except that this has the word "made" instead of "prepared." You may find that question in almost every chemistry. It is so common, you could hardly take any chemistry and not expect to find it.

Q. Is there any similarity between that and Brown's question? A. No: Brown's is simply the detection of a carbonate.

Q. Which is not part of this? A. No. The only part it resembles is the middle part.

Q. The next question—"Describe the manufacture of sulphuric acid,"—is found everywhere? A. It is found everywhere. I do not see how it could be put in any other terms.

Q. Did you find the rider to that? A. I did, it occurs in Thorpe's Problems, page 32.

Q. Is that a common book? A. Quite common.

Q. For what purpose does Thorpe say he wrote it? A. I have not read the introduction.

Q. It is to accompany Roscoe's Chemistry! A. That I can see.

Q. Read the question there? A. The problem is here word for word, the figures alone being changed. "A vitriol-maker prepares 100 tons of vitriol of specific gravity 1·6

containing 70 per cent. of acid: how many tons of pyrites containing 42 per cent. of sulphur must for this purpose be burnt? Supposing that 3 per cent. of the theoretical yield of sulphur remained unburnt in the pyrites, what would be the difference in the production of sulphuric acid?" There is no change in words, but the figures are changed. It is the same question identically.

Q. Would you consider that Brown's rider bears any resemblance to that question? A. None at all.

Q. If a person could work that of Brown's, would he work the other? A. It does not follow at all.

Q. The next question, No. 6? A. I did not find the exact question anywhere, but it is identical in form and substance with one of my own questions in the University Examination. Therefore, I would infer that whoever drew up the question must either have seen this set of questions or some similar to it, from the particular form in which it is put.

Q. Would you say that the person who drew up Brown's question had seen that, or anything like it? A. It would not follow—not at all. Brown's question you will find in every book on Chemistry you can possibly take up.

Q. Did you find the other? A. No; it is an unusual form, and I recognized it as a form, I do not say peculiar to myself, but that I used extensively, and, so far as I know, original.

Q. Brown's is the usual question asked in all ordinary text-books, while the one in the Examination Paper is an unusual form of putting the same question? A. Quite so.

Q. The next question, No. 7? A. I found the second part of that, which is almost identical with the first question of the paper of 1876, in Wilson's Chemistry, page 503:—"A solution contains potassic chloride, iodide, or bromide; how may it be ascertained which of the three is present?" That is the same as the latter part of this, and corresponds more closely with the question of 1876 than this one, but they are almost the same question.

Q. Would you consider that and Brown's question the same? A. Brown's only includes a small portion. It is not what are the sources of iodine, but how it may be obtained and how detected. Brown's question is confined to iodine alone.

Q. If you knew Brown's question, how much of question 7 could you answer? A. You could answer just this part of it:—"How is it prepared?" and how it may be detected in a compound.

Q. You would miss the chloride and fluoride? A. Yes; and the bromide in the other question.

Q. By knowing Brown's question, could you detect an iodide? A. You could not.

Q. They are not on the same subject? A. Except the first part iodine.

Q. Question 8—did you find anything on that? A. I did not; though it is quite a common question to ask, to classify the metals.

Q. Do you consider that question the same as Brown's, after the first clause? A. The next has no connexion

Q. Question 9—did you find anything on that? A. I did not; but it is a question which, if you ask about the preparation of tin, you would not put in any other form.

Q. If you ask about tin, it is the usual form? A. Yes. The question which, if you had no book before you, would most naturally rise to your mind to write down.

Q. The Chemistry paper for June, 1874, question 1? A. That also is a common question, so common that you could not vary it, that I see. You find it in every chemistry in that form.

Q. Question 2—You did not find that? A. No.

Q. It was original, I suppose. Is Brown's question the same? A. Not at all the same. Brown's question is, how is nitric acid obtained. In this, several subjects are given, and you are to combine them and see what the products would be.

Q. Could a person who knew Brown's question answer that? A. No, it would not follow at all.

Q. The question is on a different subject? A. Yes, "nitric acid" is the only thing common to them both.

Q. Did you find question 3? A. I did, in Barff's Chemistry, page 301:—"How would

you obtain evidence of the presence in a given solution of ammonia, whether full or combined?" In the paper it is:—"How would you obtain evidence of the presence of ammonia, whether pure or combined, in a given solution?"

Q. They are almost verbally the same? A. The questions are identical.

Q. Written opposite that is the same question of Brown's as against question 3 of the July paper. Those two are simply questions on the same subject? A. Yes.

Q. And that is the only connection? A. That is all.

Q. Did you find question 4? A. I did not find it in that shape at all.

Q. Is it the same as Brown's question? A. They have no connection that I can see.

Q. The next question—did you find that? A. That is almost identical with question 5 in the other paper. You find it in almost every chemistry in some shape or other.

Q. It is a common question? A. It is one of the commonest questions.

Q. Did you find the rider to that? A. Yes; I did not find that, but I found a question which I would suppose the person who composed this one had used or applied, in Thorpe's Chemistry.

Q. Question 6? A. I found that on page 307 of Barff's Chemistry: "A specimen of spring water is supposed to contain sulphuretted hydrogen (hydric sulphate), how would you ascertain whether any sulphuretted hydrogen was present?" In the paper there is the addition of the word "really," otherwise they are word for word.

Q. Is that the same as Brown's question? A. They have no connection.

Q. In the part of the chemistry where you would find materials for answering Brown's question: "What are the usual impurities of spring water, how are they detected, and how are they removed?" would you find the answer to the other? A. No, it is not a "usual" impurity.

Q. You would find it in another part of the chemistry? A. Yes.

Q. Treated of under what head? A. It would properly come under the head of Sulphuretted Hydrogen.

Q. The next question, No. 7? A. I find this entire on page 310 of this same book—Barff's: "By what experiments could you prove that common phosphorus, and red or amorphous phosphorus, are allotropic modifications of the element phosphorus?" It is word for word the same.

Q. And it is not verbally, but only in substance the same as Brown's? A. Just in substance; they both allude to the two forms of phosphorus.

Q. What is common to these two questions? A. The first part of Brown's question is not contained in the other at all; the other part resembles the other question, only it does not refer to any definite mode; it wishes it to be done generally.

Q. Question 8? A. You find it everywhere.

Q. Question 9? A. That also, is just one of the common questions.

Q. Is it the same as Brown's question? A. It is not the same at all; I do not see why they should be placed opposite one another; the two questions are totally different; they have no connection with each other.

Q. Question 10? A. I have an almost identical question in my own paper, only copper is substituted for gold; in substance it is the same.

Q. Compare No. 10 with Brown's question? A. They have no connection at all; they are like those I have just spoken of. In one you have a mixture of silver and potassium, and in the other a coin with silver and gold.

Q. No chemist would set the one for the purpose of answering the other, would he? A. I cannot see how he would.

Q. Auestion 11,—Professor Croft says he does not know where it came from? A. I have found it in Thorpe's Book of Problems.

Q. Does that problem occupy a prominent place in the book, where it would be caught by any one opening Thorpe? It is at the beginning of a chapter, is it not? A. It is the third problem in the chapter on Combination and Decomposition of Gaseous Bodies.

Q. Is it answered there? A. It is.

Q. Given as an example worked out? A. Yes.

Q. Read it, and we will see if it is the same? A. "100 cubic centimetres of ammonia gas are completely decomposed by a series of electric sparks, yielding 200 cubic

centimetres of mixed hydrogen and nitrogen; an excess of oxygen is next added, when the volume of mixed gases is found to amount to 290 cubic centimetres. The mixture is now exploded, when 65 cubic centimetres of gas remain. Show from these data that thetsymbol for ammonia is NH3." There is a mistake, as Professor Croft said, in Brown's question. It is correct, however, in the Examination Paper. The question in the Examination Paper is word for word as contained here. This is a book I have had for several years and have used myself.

Q. Then, in these two Chemistry papers, how many questions have you found from other sources? A. Do you mean word for word, or in substance?

Q. First, how many, word for word? A. Eight, word for word.

Q. Out of how many? A. About 20.

Q. How many have you found in substance the same? A. I would take three more which are in substance and in form, the same, as that about the silver coin. And then the rest are common to all Chemistries. If you get any Chemistry, you cannot help getting them.

Q. There are eight questions identically the same;—do they include all the peculiar questions? A. They do.

Q. Then the others are simply common questions that would occur to anyone? A. Yes.

Q. Take the Physics paper for July, 1874. The first question:—"How would you cool a mixture in the absence of ice or snow"—did you find that? A. I did not.

Q. Is it a common question? A. It is quite a common question.

Q. That is the ordinary way of asking it, is it not? A. I do not see anything out of the usual way.

Q. The second question? A. That also is a common question. I should explain that in giving those eight, I included the Physics paper, which makes twenty questions in all.

Q. The third question—Professor Croft says there is nothing unusual, but it is remarkable that it, and the question on the note-book, are so much alike. Did you find that question? A. I found that question entire in the Edinburgh Examination Papers, page 206:—"What is the 'Thermal Unit' generally adopted? A pound of mercury at a temperature of 102° C is immersed in a pound of water at 40° C; how many degrees will the temperature of the water be raised, taking the specific heat of mercury at ·03?" It is the same question, word for word.

Q. It does not differ in a word? A. No, nor in a figure either.

Q. In Brown's question the figures differ slightly, but it is virtually the same question? A. There is a slight difference. I think it is from a mistake in the note.

Q. Question 6—do you see any connection between that and Brown's question? A. There is no connection between these two. The one is the simple, the other the compound, microscope.

Q. With regard to question 7, Professor Croft remarked on it as one of three questions that were peculiar. Did you find that question? A. I found it entire, just as it stands here, on page 204 of the Edinburgh University Calendar.

Q. Read it? A. "Describe an experiment to illustrate Electrical Induction. What is the phenomenon known as the "Return Shock"? Explain it.

Q. That is the same question word for word? A. Yes.

Q. Who was the examiner, who set that question? A. Professor Tait, and Mr. Lees associated with him.

Q. Are Brown's questions on the same point, after all? A As they are in his notes, they are just two separate questions.

Q. Question 8—did you find that? A. I did not.

Q. Is it the same, however, as the question with which it is compared? A. No, they are intended to explain different actions. The one is a point presented to the conductor of the machine which will destroy its force for the time by conducting away the electricity. The other is part of the machine, and gives off a stream of electricity itself. They are different altogether. The second part of Brown's question is similar, but not the first part.

Q. The first part is not contained in question 8? A. No, it is not connected with it at all.

Q. Question 9? A. It is just a common question. I do not see how you can put it in any other terms, if you want to describe the machine. It is just the same as "Describe Grove's Galvanic Battery," and so on.

Q. Then out of these papers you find—? A. There are eight, word for word.

Q. And those include all the peculiar questions. A. All peculiar questions.

Q. Do you consider that these papers have come from a common source? A. I would infer that those who drew them up must have had access to these books, or to Examination Papers containing the problems of these books—I cannot say in what form.

Q. You did not find any of Brown's notes word for word in any of the books that you searched? A. No, except that common question about the common impurities of spring water, and the manufacture of sulphuric acid, and Marsh's test for arsenic, which are the same in both.

Q. Do you see anything in either of these questions which would lead you to infer that one paper was borrowed from the other? Could two persons set those two series of questions, and yet have no connection with each other whatever? A. Certainly; I have no hesitation in answering that. I am quite certain of that, that it might quite easily be done. I have already found a third of the questions or rather more elsewhere. I have found four or five or six more identical in form and substance, but with different materials taken; and the others that remain are all such common questions that I do not see how any examiner, if he touched the subject, could do anything different.

Q. You have not seen anything to lead you to suppose that the two persons setting them had anything to do with each other? A. I could not fairly infer it.

By Mr. Davin.

Q. In regard to the physics paper, I understand you to say that most of the questions are like Brown's notes? A. No. 3 differs very materially.

Q. In regard to No. 7, Prof. Croft thought it a very extraordinary thing that the return shock should be in the same paper. Do you think it extraordinary? A. I cannot see why it should be, because it is naturally connected with it.

Q. Professor Croft said he had never heard of it in this connection before. A. Then Professor Croft has not read up so extensively on that point as some others have. The same question occurs in the Edinburgh University calendar for 1871-2, page 204.

Q. Is this note on the margin of that book your writing? A. No.

Q. Who wrote it? A. I could not say. None of it is my writing.

Q. Mr. Kirkland marked this book and gave it to you? A. Yes. I only came in this morning and had no opportunity of studying up the matter beyond the notes I was able to make. I got the telegram yesterday afternoon, and I had to go over these books with that single exception, and, if I had two other books, I should have been glad. If I had had access to the other two books, I would have found more, I think.

Q. Is it not peculiar that so many questions given by the examiner should be like the questions given by the teacher? You have to hunt in five or six books to find a few questions. Have you a large experience as an examiner? A. Somewhat large.

Q. Is it not peculiar that in this physics' paper so many questions in Brown's notes should correspond to so many questions in the examination paper? A. It would depend altogether if these were all that Brown got and these were all that were given on the examination paper. Then, perhaps, there might be something strange in it; but, as I understand, these are only a portion of what Brown got, marked and selected from his notes—that he got these in the course of the session.

Q. Does it strike you as peculiar? A. Only under these conditions—not in the fact that they should resemble one another.

Q. Professor Croft swore that the similarity was very striking? A. So striking that some are identical with those that are published, word for word.

Q. What is your opinion A. I have already given it.

Q. You do not believe that such a coincidence could happen without access being had by both to the same source? A. I never said that I did not.

Q. You believe that both teacher and examiner might hit on the same subjects, when you had to rummage through a whole library to find them? A. I do not think

there is any necessity for that. The course is a very narrow one, and the questions that can be set are very few, and if you go out of the way to set questions, the outside public will be down on you, as it appears to be in this investigation. So you have to set some prominent, principal leading questions which necessarily you must repeat.

Q. Am I to understand that, in every examination paper on Physics that may be set, these questions must necessarily be repeated? A. No; but you must repeat some of them—this magneto-electric machine, for instance.

Q. Do you know Mr. Maxwell? A. I do not.

Q. Do you know Mr. Tait? A. I do not.

Q. Of what University are you a graduate? A. Toronto University.

Q. You are not an Edinburgh man? A. No, although I am a native of Edinburgh.

Q. Have you paid some attention to the subject of Chemistry? A. I have. I was gold medallist in it. In some nine successive examinations, Professor Croft was good enough to give me the first position.

Q. Did Professor Croft see reason to reconsider the opinion of your ability in Chemistry? A. I do not think he did.

Q. Did he ever write any letters and publish them saying that you were incompetent to act as an examiner? A. I think he did; but unfortunately, Professor Roscoe, whose books he authorizes, and whom he looks upon as equal or superior to himself, wrote a letter of an entirely opposite character.

Q. Is Professor Croft the highest authority on Physics and Chemistry in America A. I would not like to say that, by a long way.

By Mr. Glashan.

Q. Is Professor Croft's name known as an authority on Physics at all? A. Not in Physics.

Q. Is Professor Tait's known? A. That I could not speak of definitely.

By Mr. Kirkland.

Q. You attended Professor Croft's lectures? A. Yes.

Q. Is he accustomed to put questions to his students? A. He is not.

Q. Then he is not an expert in putting questions? He has no experience in drilling up students for examination? A. No; he is not a trainer or an educator in any sense of the word.

Q. He is not a teacher in the same sense as we use it in regard to others? A. No; he is simply a lecturer. No one doubts his practical knowledge of chemistry.

Thomas Kirkland, sworn:—

By Mr. Edgar.

Q. In the charges before the Commission it is stated that, "in the preparation of Examination Papers in connection with the Public and High Schools, there has been collusion between members of the Central Committee and other parties interested in the work or results of the examinations." It has been stated more specifically in a letter which I have received, that there has been collusion in this respect between yourself, as a teacher in the Normal School, and Dr. McLellan, one member of the Central Committee; and you have heard the evidence that has been brought before the Commission on that subject. Now, I wish you to state, as a fact, connected with this charge, whether there has been collusion, or whether there has not? A. There has not.

By Mr. Davin.

Q. Your relations with Mr. McLellan have been very intimate? A. Yes; I suppose I may say they have been very intimate.

Q. You were fellow-students together? A. Yes; we studied together at the University.

Q. Roomed together? A. No; he was a married man, and I was single.

Q. Were you engaged at Whitby at any time? A. I was.

Q. When did you go there? A. I went there in 1863, and remained till 1871.

Q. During that time was there a question of the same kind as the present brought up as to the Examination Papers? A. There was not. Will you allow me to explain what was brought up? The County Board of Ontario had two examinations in the year, and the same papers were used at both. Some of the students who attended the High School at which I taught, got some of these papers, and during six months prepared for the spring examination. A gentleman teaching in another school made a complaint, and the subject was investigated by a Committee of the County Board, composed of Dr. Eastwood and Rev. Mr. Cleland. The certificates of some of the teachers were suspended, but the Committee declared that neither I nor the Secretary of the Board knew anything about it. The case was precisely similar to what occurred in the Normal School this year. The papers were used, but I positively swore, without any knowledge on my part whatever, and that was the finding of the Committee. But, in my opinion, the papers had been used from the time the Board began to publish them in October till the Examination in the Spring. It will be always the same.

Q. You are associated with Dr. McLellan as one of the Editors of the Canadian School Journal? A. That is merely nominally. Our names are only on the paper.

Q. You are associated with him in the authorship of the McLellan-Kirkland Examination Questions? A. Yes.

Q. And the hints and answers thereto? A. That is part of the same book.

Q. Are you writing with him the Mental Arithmetic? A. No.

Q. Are there any other books in the production of which you are associated with Dr. McLellan? A. None whatever.

Q. Dr. McLellan and you are very intimate? A. Yes.

Q. Does he frequently work in your room here, in the Model School? A. I never knew him to do any work there.

Q. Has he ever prepared examination papers in your private room? A. None to my knowledge.

Q. You remember teaching the chemistry class in 1874? A. Yes.

Q. The class that Brown, Prichard, and those other men attended? A. I don't say I have any distinct recollection of that more than any other session.

Q. Do you remember giving out these questions that Brown has in his note-book? A. I do not.

Q. Will you say you did not give them out? A. No, I would not say that. I believe I did. I have no recollection of it.

Q. Your custom is to give out questions? A. Yes.

Q. And to tell the students to get up those questions? A. No, they understand that. It would be useless to tell them.

Q. Some weeks before the examination you gave out some questions? A. I have no recollection of having done that especially.

Q. Are you accustomed to give out questions before the examination? A. No; especially not before the examination; we usually quit questions in May or thereabouts.

Q. And you have the examination in June or July? A. I was thinking about the Provincial Examination in July, we usually quit about five or six weeks before.

Q. Did you say to the class during the time Brown was attending, and when these questions were given, that if they would study up them you would guarantee that they would cover the whole ground? A. To the best of my belief I did not.

Q. Did you show your notes to Dr. McLellan during the session of 1874? A. I have never shown him any of my notes.

Q. Did you tell him what course of chemistry you pursued? A. I never did. We may have talked in the course of ordinary conversation on chemistry,—over the course I had pursued on chemistry. I would not swear as to that.

Q. Did he ever ask you what course you were giving your students? A. I cannot recollect; we may have talked about it.

Q. Did you ever look over examination papers with him? A. I did not.

Q. Did you ask him in regard to the examination of 1874, what questions he was going to take up? A. I did not.

Q. How would you be able to anticipate what questions would be given in the Examination Papers then? A. From the general style of the back papers—judging from what has been given. We anticipate in this way: looking over back papers we see what has been given, and we can form a very good idea of what is likely to be given. Besides that, I have been accustomed to select questions from the various University calendars.

Q. In preparing questions for examination or in your lectures you would look over his back papers? A. I certainly would.

Q. You don't go directly to Dr. McLellan to ask him what you should teach? A. Certainly not.

Q. Have you never had a conversation with him before that examination of 1874 as to the subjects which you had taught? A. To the best of my belief I have not.

Q. How often in the course of a week did you and he meet? A. I could not say. Sometimes we would not meet for three or four months, and at other times we would meet perhaps twice a week. When we were making up the arithmetic problems we might meet every week.

Q. In 1874 were you engaged in any literary work together? A. No; not at all.

Q. Didn't you discuss what the pupils should be examined on in 1874? A. No, we did not. We have discussed the papers after the examinations—not before.

Q. I understood you to say that you had discussed them with Dr. McLellan? A. I did not say so.

Q. I ask whether you discussed the subjects on which your pupils might be examined, shortly before the Examination? A. We never did.

Q. It would improve your position, would it not, if your students should come out better than those of the other masters over the country? A. No; it is not known how they come out.

Q. Is it not known to the Central Committee? A. Perhaps it is to them.

Q. And the Minister of Education? A. I could not say.

Q. It is known to the Central Committee? A. Yes.

Q. Well, the Central Committee run the whole machine. Would it not increase your power in the Educational institutions of the country, to have the Central Committee have a higher idea of your powers as a lecturer, than of the powers of other lecturers throughout the country? A. Yes, I think it would, if they thought highly of me.

Q. Would it not improve your position as an author? No, I don't think it would.

Q. You make a good deal of money by your books, do you not? A. It depends on what you mean by a good deal. I have not got much yet.

Q. You make a little, we will say? A. I make something.

Q. You are an industrious author? A. Yes.

Q. It is clearly your interest to have your pupils come out as high as possible in the Examinations? A. I don't see there is much interest in it beyond the good opinion of men.

Q. Your reputation is money? A. It is not known outside of the Central Committee. I don't think anybody throughout the country knows how my pupils come out.

Q. Would it not help the sale of your book? A. No, it is not known.

Q. If it gets known among educators and teachers, what position your pupils take, would it not help you? A. I don't think it would much.

Q. They would become distributors of your reputation? A. They are judged more by their teaching than by their marks.

Q. I want you to try and remember what you said to your class shortly before the Examination of 1874. Did you say to them, when giving them the papers, anything like what Brown swore you said, "Look over those papers, and I will guarantee they will carry you over the same ground?" A. I really could not say.

Q. Did you urge them to study up those papers, and say they need not look over Chemistry any more? A. I don't believe I did.

Q. But you will not swear you did not say so? A. I cannot recollect the circumstance at all. I will swear it is very unlike what I am accustomed to say.

Q. Did you not know that Dr. McLellan would take up the subjects he did in that June Examination, 1874? A. I had no knowledge of that whatever.

Q. Had you any for July, 1876? A. I had not.

Q. Had he not conversed with you on what he would take up in that examination? A. He had not.

Q. As to the Physics Paper for the candidates of 1874, had you access to this book (the "Edinburgh University Calendar)? A. I had this book.

Q. It belongs to the University of Toronto? A. Yes; I got it out of the library.

Q. When? A. I have had it out several times. I have been collecting exercises for that work on Statics, and I have been collecting from University Calendars, and I had that book out.

Q. Had you it out in 1871? A. I don't remember.

Q. In 1870? A. I cannot say. I have had it out several times to give examinations.

Q. Had you it out before 1870? A. I don't think so.

Q. In 1870? A. I could not say.

Q. Had you it out in 1869, for instance? A. No.

Q. How long have you been collecting problems? A. As soon as I came to the Normal School; in 1871 I commenced.

Q. Did you have it out in 1871? A. I don't recollect.

Q. In 1872? A. I have no recollection at all.

Q. In 1874? A. I could not say; I recollect having it out, but I could not tell the time.

Q. This problem about the "return shock," of which Professor Croft spoke, and which we find here on page 204—where did you get that? A. I think it is probable, though I cannot swear positively, that I got it from that, while collecting exercises for the Statics. Wherever I came across good questions in Physics, I used them.

Q. How often have you had this book out of the University Library? A. I only recollect having it once.

Q. Is that ever since 1874? A. No; I got it out yesterday. When Professor Croft mentioned three exercises that would require explanation, I recollected that these questions were not original with me, and I had the impression that I got two of the questions from the University of Edinburgh Calendar. I went to the University Library yesterday, and searched over all the calendars, and I found this question in that one. It was owing to his remarks that I looked for the question.

Q. How many times had you that book out? A. I recollect only once before.

Q You said you had had it out several times? A. I might; I cannot recollect. I have had all the calendars out so many times that I cannot recollect any one distinctly.

Q. Did you ever talk to Dr. McLellan about that question? A. I never spoke to him about it.

Q. Did he ever speak to you about any examination paper on Physics at any time? A. We have talked over the papers after the examination. I have criticised them.

Q. In Chemistry and Physics? A. Yes, and other subjects.

Q. How did he and you come to fix on this identical question? A. I cannot say how he came to fix on it. I told you how I got it.

Q. In that paper on Physics you admit there is a great similarity running through, and you have directed your evidence to prove that it is a common thing for examiners thus to anticipate? A. It is quite common.

Q. How do you account for Dr. McLellan fixing on such a question as that, and you also fixing on it, when you both had to go into such a hole-and-corner to find it out? A. My impression is I have seen it elsewhere; I believe it is in some other collection, but I cannot say where; most of those questions are copied into other collections.

Q. Question 1 on the Physics paper is admitted to be the same; question 2 the same; question 3—"What is the thermal unit generally adopted," is also found here in the Calendar? A. Yes.

Q. How does it happen that Dr. McLellan and you fixed on the same question th is found here? A. I could give you an explanation of that, but I don't know it would be Dr. McLellan's. Dr. McLellan in his questions examines on very few subjects. There are almost always questions on specific heat, and there is no work published on the subject; there is no series of problems. In order to get problems we have to go to calend ars while the number of questions we could get were very few.

Q. Are we to understand that Dr. McLellan never frames any problems of his

but takes them from other books? A. I suppose he will answer you that; but I can say that they are very largely taken from examination papers and other works.

Q. Do all examiners go on twisting the same rope of sand in the same way? A. I am not an examiner.

Q. Professor Croft says it is a remarkable fact about question No. 8—the one referring to the lighted candle? A. He is wrong; it is quite common.

Q. Then you put your experience against his? A. I have had as much experience as he has had in elementary teaching.

Q. You have questions 9, 8, 7, 3, 2, and 1; can you explain how it comes to pass that you gave so many questions bearing on the same examination paper, some of them identical with some of those which Dr. McLellan gave? A. I have done it in various other papers when he was not examiner at all.

Q. Can you explain how it happened? A. It is simply that I put my questions on important points on which he is accustomed to examine, and he seems to have selected the same questions.

Q. Did he select questions from your notes? A. Not that I know of.

Q. Do you write out lectures? A. I do not; I generally make out an abstract of a special lecture.

Q. In teaching your pupils, do you direct your attention to grounding them in the principles of the subjects you treat of, or do you teach merely to catch a victory at the examination? What is the purpose of giving those questions? A. I do both.

Q. You try to catch a victory at the examinations? A. I try to get them to pass.

Q. As high as you can? A. I don't care so much about the height as getting them through.

Q. I suppose all the examination papers would be the same? A. They don't differ so much; they differ in the questions, but not very much in the principles; the questions are generally under the same head. That one on specific heat you will find in two-thirds of the whole of them.

Q. Do you know J. Clerk-Maxwell? A. From his writings I know him.

Q. Do you know Professor Tait? A. Yes, from his writings.

Q. He is a great authority? A. He is an authority.

Q. In what? In Elementary Physics? A. No.

Q. Is Maxwell? A. No, not in Elementary Physics; they are authorities on the higher branches.

Q. Is Todhunter? A. He is not; a University professor is not an authority on elementary work.

Mr. Davin read and put in the following extract from a review of Clerk-Maxwell's "Matter and Motion" by Prof. Tait in *Nature* of June 14, 1877:

"The recent appearance of a swarm of elementary books on physics, some of which at least are written by well-known authors, leads to some very curious inquiries and speculations; for, though treating in the main of the same parts of the same subject as does the work we are specially dealing with, and addressed professedly to the same class of readers, they have comparatively little in common with it. To a certain, even a considerable extent, this difference is due to the idiosyncracies of the authors; but, after all allowance is made for these, there is still a most notable divergence. It will be both interesting and profitable, carefully to consider in what this divergence consists, and what is its probable origin. For it is not too much to say that an intelligent reader of Clerk-Maxwell's book, had he no other source of information, would be utterly unable to answer any of hundreds of questions which might be framed (without 'dodge' or 'trap') by a qualified examiner, *directly* from the text of the others; it is true that such questions would be artificial rather than natural, bearing more upon old and cumbrous dogmatic fallacies than upon the actual facts of science.

Witness: That is no answer. Clerk-Maxwell is one of the most original writers of the present day. Whatever he writes will not be like what any other person writes.

Q. Come to the papers for 1876 and Miss Montgomery's evidence. You gave out slips of paper to the class in that case as in the case of Brown? A. It would be a series of questions on a sheet of paper.

Q. You gave it to them to copy? A. Usually.

Q. And you gave it to Miss Montgomery's class as you did to the others. A. Yes.

Q. And these witnesses of yours who indicated that no such slips of paper were given were wrong? A. They never said so. If they did, you misled them by saying slips of paper.

Q. How came you to give out questions to Miss Montgomery's class, which just fitted the Examination? A. I am afraid I did not do it. I passed that year the worst examination.

Q. Your pupils did? A. Yes.

Q. But if they had taken your hints? A. What was the hint?

Q. In giving out notes on the papers—on subjects dealt with in the Examination Papers; and dealing with the same questions as the Examination Papers. A. I gave out no notes on the papers.

Q. You have sworn that you gave out some questions in 1876 as in 1877? A. Yes; just questions.

Q. Was it not proved in evidence that Miss Montgomery's notes covered the same ground as the questions given by the Examiner? A. I don't know as to that.

Q. Who was the Examiner in 1876? A. Dr. McLellan set the Papers, and Mr. Glashan examined the Papers sent in.

Q. Did Mr. Glashan ever say to you there was a surprising similarity between your teaching and the Examination Papers? A. He said something very like it once.

Q. Did Mr. Hughes ever say so? A. On what subject?

Q. On Chemistry? A. He never said any such thing. I have no recollection of it. To the best of my belief, he did not.

Q. You never heard of Mr. Hughes remarking on the suspicious similarity? A. I did not.

Q. Did any one remark in your hearing on the suspicious superiority of the Normal School candidates? A. I never heard of it.

Q. Did it ever come to your ears that people remarked on the suspicious superiority of the Normal School candidates above the Ottawa pupils? A. No. I don't know it is a fact. I don't think they have been superior. In that examination that you are speaking of, their average in Chemistry is 50 per cent., and in Physics, 48 per cent.

Q. When was this book (Kirkland's Statics) published? A. It was commenced in December, and, to the best of my knowledge, it was out in April, about Easter. I will not answer to the time.

Q. It is dated April, 1877? A. I think it would be about the beginning of April.

Q. Did it come out in the month in which you wrote the Preface? A. Yes; the Preface was the last thing I wrote. The book was ready to come out when I sent down the Preface.

Q. In what part of the year does the Examiner for the June and July Examinations put in his Examination Papers? A. I know nothing about that.

Q. Did you show Dr. McLellan the manuscript of the book? A. I think I did. I certainly showed it to Professor Young. I showed it to Dr. McLellan, I think. He would have seen part; but he was away during the last revision of the manuscript.

Q. Did you converse with him when you brought it out? A. I did.

Q. Did you ask his advice about it? A. Parts of it.

Q. Did he see it in its infantile state, just when it had burst from your brain? A. He saw one manuscript which I withdrew, but I think he likely read the others. I recollect consulting him about various points of the book.

Q. Did you show him proofs of it? A. Most of them, I think I did.

Q. In what month would you show him most of them? A. It would vary. I don't know when.

Q. Did you give him any proof? A. I could not say whether he kept them or not. I got two or three proofs, I think, struck off, and I think I sent one to the gentlemen at the University. Dr. McLellan was away a good deal; but when he was home I consulted him about some points.

Q. Have you any doubt you sent him a proof of the book before it came out? A. The printer was able to print only 30 pages at once. He sent me them and I corrected

them. Then the type was thrown down. He undoubtedly got some of those sets of 30 pages when he was home.

Q. He gave you advice on the book? A. Several points.

Q. And approved of the order you had adopted? A. We never talked of the order at all. The order is common to this country.

Q. Did he say that, in future, he intended to take his examination papers from your book? A. I don't know where they were taken from, or that they corresponded, until I saw the examination papers.

Q. You saw they corresponded with the proof-sheets when you saw the Examination Papers? A. I saw there was a good deal of correspondence between them and the book.

Q. Then they must have corresponded with the proof-sheets? A. Yes.

Q. In regard to the arithmetic paper for 1877—when were the Examination Papers published by McLellan & Kirkland? A. I don't know; I have less recollection of that. I did less of the work on that.

Q. Were you struck, when you saw the Examination Papers, with the similarity between them and the book of which you and Dr. McLellan were joint authors? A. I had never looked at Dr. McLellan's Examination Papers on arithmetic.

Q. But you have compared the papers which have been pointed out here? A. I have listened to them.

Q. Of what part of the book are you the author? A. I took the greater portion of the elementary part—the first chapter.

Q. The unitary method? A. No; the chapter after that, and a good deal of the intermediate.

Q. When did you and Dr. McLellan commence this literary labour? A. About the last of January.

Q. Then you must have met very frequently from January to April? A. Frequently—yes.

Q. And Dr. McLellan knew that at that time you were lecturing on arithmetic? A. I never lectured on arithmetic.

Q. You teach algebra? A. Yes, during the last two years I have. If I had lectured on arithmetic I would not have considered it my duty to engage in that work.

Q. Would you have thought it wrong? A. No, I would not. If I had been teaching arithmetic I don't see why I should not.

Q. You have changed your mind? A. Yes. I was thinking of something else at the time I made the answer.

Q. How many books have you prepared for Adam Miller & Co.? A. I have just written one.

Q. This Statics? A. Yes.

Q. How many unauthorized books have you been engaged on? A. Nothing but the Examination Papers. I have done little things to others.

Q. As editor of this Journal, I suppose you have some communication with Adam Miller & Co.? A. Not much. I have just written one short article for it once a week.

Q. Is that all the communication with them you have had? A. I have talked with them.

Q. You have had that pleasant communication by way of cheque? A. Nothing of that.

Q. For your Statics? A. Yes.

Q. By a royalty, or in a lump sum? A. A royalty.

Q. How are you and Dr. McLellan paid for the Examination Papers? A. By royalty.

Q. Therefore the more that are sold of that book the better for the authors? A. Decidedly.

Q. Do you receive your royalty separately or together? A. I receive mine separately. I have no connection with Dr. McLellan at all.

Q. You don't know whether he receives a royalty or a lump sum? A. He does not receive it with me.

Q. You don't go together to draw it? A. No; it is a separate agreement.

Q. Brown says you emphasized the questions when you gave them out—did you? A. To the best of my belief, I did not.

Q. Do you go into the examination hall with the examiner? A. I do not. I may be in at the same time.

Q. You did not, in 1874, see the students break into a smile? A. I am seldom there at the beginning. If that had occurred I would not have seen it.

By Professor Young.

Q. Have you seen that article in Todhunter, which was quoted as showing the extremely limited range of the subjects to which an examiner must confine himself in setting papers in the elementary parts of Natural Philosophy? A. I have seen that.

Q. Did you hear Mr. Davin refer to an antidote? A. Yes.

Q. Are you aware that Clerk-Maxwell treats of the matter contained in Newton's Principia? A. I have not seen the work, but I would not be surprised if he did. It is what I would expect.

Q. Would that be a fair comparison, if that is so? A. It is no comparison at all You cannot compare anything of Maxwell's with anything else.

By Mr. Hughes.

Q. Have you any objection to state what is the amount of your salary as Editor of the *Canada School Journal*? A. Mr. Gage, the senior partner of Adam Miller & Co., when speaking of the beginning of the Journal, told me—and I think you were present—that there was nothing to be expected from it—that we were to expect no remuneration, and also that we were not expected to do much, except give advice; and that the Journal was to be conducted in the interests of teachers. I have got nothing from it and do not expect anything.

By Mr. Davin.

Q. What part of Ireland do you come from? Are you from the North? A. Yes.

Q. What equivalent do you get for the work you gave the *Journal*? A. Nothing.

Q. You do it for love? A. We do much more going through the country and lecturing than we do for that.

Q. Do you get the equivalent? When you had the conversation with Mr. Gage and Mr. Hughes, did Mr. Gage tell you that you would get the equivalent in the puffs in the *Journnl*? A. It is distinctly understood we should not get it. I, as one of the Editors, would not allow it.

Q. Not even the puff collusive? A. My *Statics* has never been mentioned.

Q. Are you aware that Mr. Hughes is a relation of Mr. Gage? A. I am not aware of it. I never heard it.

By Mr. Hughes.

Q. Was it an understanding when the editorial staff was appointed that the editoria columns of the *Journal* were not to be used to puff Adam Miller & Co's. books or anything emanating from that firm? A. Yes.

Q. There was a gentleman mentioned who was afraid the Journal was to puff Hamblin Smith's Arithmetic? A. I think it would be better for any one who has anything to do with books not to have anything to do with the editorial staff of the *Journal*.

By Mr. Davin.

Q. Has your book been advertised? A. Yes.

Q. Have you paid anything for the advertisements? A. I have nothing to do with that. It lies with Mr.Gage.

The Inquiry was then adjourned till Monday next at 11 a.m.

MONDAY, November 19th, 1877.

The Inquiry opened at 11 o'clock.

WILLIAM JAMES GAGE, sworn :—

BY MR. EDGAR.

Q. Are you a member of the firm of Adam Miller & Company, of Toronto? A. I am.

Q. Are you the senior partner of the firm? A. I am.

Q. Have you had the chief conduct of the publishing business for any length of time? A. I have.

Q. For how long? A. For the last three years or more, since I have become a member of the firm; at least for the last three years.

Q. In the Commission under which this inquiry is going on, one of the charges is, that "there is within the Central Committee a ring, the members of which have dishonourable relations with the publishing firm of Adam Miller & Company, Toronto." There is that charge; you have been here for some time during this inquiry, and you may have heard the charges directed against you more fully than this. I want you to tell me, whether there were any dishonourable relations existing between any members of the Central Committee and your publishing house? A. There are not.

BY MR. DAVIN.

Q. You have been for three years connected with the firm? A. Between three and four.

Q. When did you first commence to publish school-books? A. There were school-books published by our firm when I became a member of it. I think that the first we published was Fleming's Analysis.

Q. When? A. I think in the winter of 1876. If I remember correctly, it had been published in the United States by another firm.

Q. When did you first have communication with Mr. Kirkland about his book? A. I think that it was in the summer of 1876.

Q. And Mr. McLellan, when? A. In the January of 1877, so far as I recollect.

Q. When did you first converse with Mr. Hughes about school-books? A. I am hardly able to say as to the precise date, but I think it was about two years ago.

Q. Mr. Hughes is a relation of yours, I think? A. He is: that is, he is not personally a relation, but his wife is.

Q. He is married to a cousin of yours, I think. A. He is.

Q. Did you have any business relations with Mr. Hughes before 1876—of any kind? A. We had.

Q. How early did you have business relations with Mr. Hughes—of any kind? A. I cannot recollect the precise date, but it was shortly after I became a member of the firm.

Q. Four years ago? A. I am really unable to tell whether it is three or four years that I have been a member of the firm of Adam Miller & Co.

Q. What did you talk about when you first discussed the question of books? A Do you refer to school books?

Q. About anything. Do you remember the conversation with Mr. Hughes? A. do not; but I remember asking him to prepare for us a reciter. I asked Mr. Hughes to prepare for us a reciter—a book of dialogues,

Q. Did he advise you to go into school books then? A. He did not.

Q. When did he first advise you to go into school books? A. He never advised me to go into school books.

Q. Has he never given you any advise in regard to the conduct of your business, in regard to school books? A. He has not, so far as I recollect.

Q. Who first suggested to you to start the *Canada School Journal*? A. I do not remember any person first suggesting it to me.

Q. Did you not have a conversation with Mr. Hughes on that subject? A. I did.

Q. How long ago is that? A. About two years ago.

Q. You discussed the propriety of starting the *Canada School Journal* with Mr. Hughes? A. I did.

Q. Do you remember the conversation? A. I do not; but I remember that Mr. Hughes advised me against starting it.

Q. Did he say that if you started the *Canada School Journal* it would gradually bring the whole of the text-books into your firm? A. He did not.

Q. Did Mr. McLellan suggest to you that you should start the *Canada School Journal*? A. He did not.

Q. When did you first have a conversation with him? A. Just before his starting for England. I think it was some time in the summer or the fall of 1876, that I first met him.

Q. This was just before he went to England? A. It was a short time before, but I do not remember how long.

Q. Do you remember the conversation which you had with him? A. I do not remember the conversation, but I remember the subject of my conversation.

Q. What was it? A. I had called on Prof. Loudon at the University, to ask him to adapt or prepare for me, an edition of Robinson's Arithmetic, but he said that he did not wish to undertake it. He referred me to Dr. McLellan, I saw Dr. McLellan.

Q. Where? A. In his study in Yorkville. He was then very ill, and he said that he did not care about the work. I do not remember any details of the conversation. It was in a general way.

Q. Did you give him any introductions when he was going to England? A. I did.

Q. To whom? A. I gave him one to Rivingtons.

Q. Did you give him a mission then? A. I did not.

Q. Did you tell him to speak to Rivington about any text-books? A. I did not.

Q. What was the object of giving him an introduction? A. He spoke about going to Cambridge, and I said that I had a friend there, Mr. Potts; and that he would be pleased to meet with him and also Hamblin Smith, who was there. If I gave him an introduction to Rivington's, no doubt they would introduce him to Hamblin Smith.

Q. Did he correspond with you from London? A. He did not.

Q. From any part of England? A. He did not.

Q. Did he write to you after he came back about Hamblin Smith? A. He did not.

Q. Did he communicate with you about Hamblin Smith? A. He did not.

Q. You saw his letter recommending Hamblin Smith? A. I did.

Q. When that letter appeared, did you have a conversation with Mr. Hughes regard the publication of Hamblin Smith? A. I did not.

Q. Did you have a conversation with any member of the Central Committee? A. I did not.

Q. The recommendation of Mr. McLellan then was the basis on which you went in publishing Hamblin Smith's Arithmetic? A. It was not the sole basis.

Q. What was the other basis or foundation? A. We had previously published two of Hamblin Smith's books, six or nine months before, and we had been in communication with Rivingtons about publishing a couple of other books of Hamblin Smith's.

Q. Did Mr. Baker speak to you about it? A. He did not.

Q. He edits one of Hamblin Smith's books for you, does he not? A. If you call editing, supplying some examination papers, he does.

Q. He is one of the editors of the Canada School Journal? A. He is.

Q. He is preparing books for you? A. I think not, I do not know of any.

Q. He praises some of your books, published by Mr. McLellan and Mr. Kirkland, does he not? A. I cannot answer from memory.

Q. Look at that number of the Canada School Journal. Do you not find him praising one of Mr. Kirkland's books? A. He praises Hamblin Smith's Statics.

Q. As edited by Mr. Kirkland? A. Yes.

Q. When did you decide finally to start the Canada School Journal? A. I think in May of this year—just before I started for England. Probably it was in June. I think that it was in June. I am not positive. It was either May or June.

Q. Had you not frequently conversed regarding the propriety of publishing it, with Mr. Hughes? A. No, I do not remember ever speaking to Mr. Hughes about it, except a couple of years previously, when he advised me strongly against it.

Q. Did you speak to Mr. McLellan, at any time? A. Yes, just about a month before it was issued—sometime in May or June.

Q. When did you get authority from all these people to put their names as they appeared? A. Just as we were about to issue it, or making preparations for the issue of it.

Q. Did you see them all about it? A. Do you mean the Editorial Committee or the Provincial Editors?

Q. The Editorial Committee, and Mr. McLellan? A. I saw Dr. McLellan.

Q. Did you get his permission? A. At first, he would not give it.

Q. How did you overcome his scruples? A. He said that his health was so bad.

Q. How did you overcome his scruples? A. Well, there was not much overcoming to be done, I think; I told him that much work would not be required of him. He said that if his name then would be of any importance, we might put it down, but that we could not get much work from him.

Q. How did you agree to pay him for it? A. I never told him anything.

Q. Did you say that he was to do it for love? A. I said at a meeting with Dr. McLellan, Mr. Kirkland, and Mr. Baker, that we could not offer any remuneration to the Editorial Committee.

Q. They were to edit this journal for nothing? A. I did offer something to Mr. Houston.

Q. How much did you offer to Mr. Houston? A. I asked him to fix his sum, but he declined. He said that it did not occupy much of his time, and he did not think that it was worth anything.

Q. He edits it for love, also? A. I cannot say for what.

Q. He edits it for nothing? A. Yes.

Q. And Mr. McLellan edits it for nothing? A. He was told distinctly that we could offer no remuneration.

Q. What is Mr. Houston's profession or occupation? A. The reason of my offering him or expecting that he would take anything, was on account of his being a journalist.

Q. Did he, like the others, scorn pay? A. He declined to receive anything.

Q. Did Mr. Kirkland decline? A. He did.

Q. And Mr. Hughes? A. He did.

Q. And Mr. Baker? A. Yes.

Q. Do you pay any of the Provincial Editors—Mr. Buchan, Mr. Ross, M.P., Mr. Glashan, Mr. Dale, or Mr. Sumichrast.. Are they paid anything? A. Some of them are.

Q. Mr. Buchan? A. He is not.

Q. Mr. Ross? A. He is not.

Q. Mr. Glashan? A. He is not.

Q. So you got the great mathematical abilities of Mr. Glashan for nothing? A. He has not contributed anything. He is nominally put down. These are the provincial editors for Ontario. Mr. Buchan was not asked to become an editor at all.

Q. When you talked with these gentlemen about getting their editorial services, did you say that if they were not paid any money, they would be paid in puffs in this paper? A. I did not.

Q. How does it happen that these gentlemen give you their services for nothing? A. Neither Mr. Buchan nor Mr. Glashan have written anything.

Q. How does Mr. McLellan expect to be paid? If not in money, how? A. He does not expect to be paid in any way, from what I have said.

Q. He gives you his editorial services and the weight of his name, for nothing? A. He has given no editorial services yet, I think.

Q. He gives you the weight of his name as Inspector of Schools, and Examiner, and President of the Teacher's Association for nothing? A. He does.

Q. And Mr. Kirkland also, for nothing? A. He does.

Q. And Mr. Hughes, your relative, gives you his services for nothing? A. He does.

Q. Have you paid Mr. Hughes any sums of money? A. I think that we have—yes, I remember that we have.

Q. Have you any doubt about it? A. I have not now.

Q. How much have you paid Mr. Hughes? A. I think that we have paid him something like fifty dollars. I cannot tell the precise figure.

Q. Any more than fifty dollars? A. I think not.

Q. Have you not given him two fifty-dollar bills? A. I do not remember giving him any more; perhaps, some three years ago we did give him more, when he edited the Reciter for us—a book of dialogues.

Q. But since that, have you not given him two fifty dollar cheques? A. We have not, so far as I remember; but perhaps the sum was not fifty dollars.

Q. How large was it? A. I am giving it as near as I can recollect; it was about fifty dollars.

Q. When was that? A. It was for the preparation of some composition and exercise books.

Q. Composition blanks? A. Yes.

Q. How much does that sell for at the retail price? A. I think that twenty cents is the retail price.

Q. Is there any other copy-book in use? A. I think that there are two of that series.

Q. Are you aware that there is another copy-book? A. That is not a copy-book.

Q. What do you call it? A. A composition blank exercise-book.

Q. Are there any other composition blanks in use? A. There are two of that series in use.

Q. But not of that series—not prepared by Mr. Hughes? A. None that I remember in Canada; but perhaps there are, I cannot say positively.

Q. Are you aware that there is another book like this in all respects, except the cover and Mr. Hughes' name? A. I am not.

Q. You are not aware that that book sells for very much less than this? A. I am not.

Q. Then Mr. Hughes gives you the weight of his name and prepares the composition blanks for you—all for fifty dollars? A. The composition blanks were prepared a year ago; I am not sure but what they were prepared eighteen months ago.

Q. How much did you give him for that? A. For the three books, I think fifty dollars.

Q. And that is all the money you have paid him? A. I said that two or three years ago—perhaps three years—during Adam Miller's connection with the firm, in his life-time, Mr. Hughes was paid something for the preparation of a couple of books of school recitation.

Q. How many of these have you sold? A. I cannot really say. There are three exercise books—do you mean No. 3 or No. 2.

Q. Let us have all? A. It is impossible to say.

Q. Are they all prepared by Mr. Hughes? A. Yes.

Q. How many did you turn off? A. Perhaps 30,000 altogether.

Q. What is the wholesale price of them? A. Of that book—$1.60 a dozen.

Q. There is a nice little profit on that? A. That is just what we are doing business for.

Q. Has Mr. Hughes used his influence to introduce this book? A. Not that I know of.

Q. Is it an authorized book? A. It is not.

Q. Do you give Mr. Hughes a royalty on that 30,000? A. We do not.

Q. His services, in preparing three editions of this book and editing the Canada School Journal, are all paid for with fifty dollars? A. Yes. I do not say positively fifty dollars. I am speaking as near as I can recollect. I do not think that it is more.

Q. You never intend to pay him any more? Not a cent more, in connection with these books or the Canada School Journal, as far as I know of.

Q. Is he *sub-rosa* a partner in your concern? A. He is not.

Q. And all he gets for doing all that work is fifty dollars? A. Most positively.

Q. When did Mr. Kirkland speak to you about the Elementary Statics? A. I think it was sometime in the Fall of 1876, but I would not say positively. We have been speaking about books for the last few years.

Q. How many have you published of it? A. I think that the first edition was something like fifteen hundred, and the second edition, probably two thousand. I think that is all we have published.

Q. Do you intend to get out another edition? A. I hope so.

Q. The book is having a good sale? A. A very good sale.

Q. When did you publish it? A. This year.

Q. At what date? A. I cannot tell you the precise date.

Q. In May? A. I think that we were probably able to send to the trade the copies sometime in May. I think it was before I went to England.

Q. Was it in the hands of any one before May? A. It was.

Q. In whose hands? A. I prepared a number of copies—perhaps 30, or more copies—to give to Mr. Kirkland and to send to the members of the Central Committee.

Q. Did you send one to Dr. McLellan? A. I think that I did.

Q. How much did you pay Mr. Kirkland for that book? A. Do you mean altogether?

Q. Did you pay him by royalty, or in a lump sum? A. By royalty.

Q. How much royalty do you pay him? A. I think it is a little wide of the mark to ask such a question, but we pay him a royalty of fifteen per cent.

Q. On the retail price! A. Yes.

Q. That book costs one dollar? A. To the public, yes.

Q. Is it not a high price for a little book like that? A. Not of that class of books.

Q. How did you get this book authorized? A. We simply submitted it for authorization.

Q. To the Central Committee? A. Yes.

Q. Did you submit it in proof? A. I did not.

Q. You never submitted it to the Central Committee, until you submitted it in book form? A. I did not.

Q. Did you have any assurance before, that it would be authorized? A. I had none.

Q. Did Mr. Hughes tell you? A. No.

Q. Did Mr. Hughes, who seems to have a premonition in regard to these matters, tell you? A. He did not.

Q. Did any of your editorial committee? A. No.

Q. How came you to take the risk? A. Mr. Kirkland was asked to publish a book by several Teachers' Associations, and I knew that Mr Kirkland, at least by the reputation which he had—was a good teacher; and that a book at any rate, issued on that subject by Mr. Kirkland, would have a considerable sale among the teachers. I think that these were the sole reasons, as far as I know, for publishing it.

Q. Did you have any conversation with any body as to the probability of its being authorized? A. I had not.

Q. Did you converse with Mr. Kirkland as to the probability of its being authorized? A. I did not.

Q. You swear that you took the risk of publishing that book without any conversation with anybody as to the probability of its being authorized? A. I do.

Q. Is that your custom? A. It is.

Q. When did you first decide to publish Hamblin Smith's Arithmetic? A. I only know by the letter which was read by you, that it was on the 25th of November.

Q. Did you converse with Mr. Hughes as to the probability of that book being authorized? A. I did not.

Q. On what condition was the book authorized? A. The condition, it seems from the report, was that it be adapted to Canadian currency.

Q. Has it been submitted to the Central Committee? A. It has not.

Q. And yet it is advertised as authorized? A. Yes.

Q. You advertised it as authorized before you submitted it to the Central Committee? A. It seems so.

Q. It is not in point of fact authorized? A. It seems not. We have complied with the requirements in the case.

Q. Have you been assured by any member of the Central Committee, that it would be certain to be authorized? A. No.

Q. Did Mr. Hughes never speak to you of that? A. No.

Q. Did Mr. McLellan? A. No.

Q. Did Mr. Kirkland? A. No.

Q. Why did you publish it? A. Because it is.

Q. How do you know that it will be authorized? A. I only know that we have adapted it to Canadian currency.

Q. You judge that you have adapted it to Canadian currency? A. Yes.

Q. And you are perfectly confident that the Central Committee will endorse your judgment? A. I am not.

Q. How came you to advertise it as authorized? A. I simply have in the list, Hamblin Smith's Arithmetic authorized, conditional on being adapted to Canadian currency. It has been adapted.

Q. How do you know that the Central Committee will endorse it, as adapted? A. I do not know that.

Q. Why did you advertise it? A. Simply because we advertised it as stated on the official list.

Q. You never have spoken to any member of the Central Committee, as to the probability of its being authorized? A. I have not.

Q. Or as to the probability of any of your books being authorized? A. To the best of my knowledge, I have not.

Q. You have never conversed with any of these gentlemen about the authorization of any book? A. I have not, to the best of my recollection.

Q. You swear that? A. I do.

Q. Where is the office of this Journal? A. In my office.

Q. Have you any editorial rooms? A. No; nothing special.

Q. Who acts as the go-between, between these editors and yourself? A. I do not understand.

Q. Who acts as editor? A. Mr. Houston is supposed to be, and is virtually, the editor.

Q. What process does he take to get articles? A. I cannot tell you; the editors of the Provinces send their matter to us, and we give it to him.

Q. And he brings out the Journal? A. We bring it out.

Q. Do you see him every week? A. No.

Q. Have you spoken with him as to the propriety of any books being authorized? A. No.

Q. You have never asked Mr. Houston as to Mr. McLellan's opinion? A. I have not.

Q. How comes it that you are so reticent with these gentlemen? A. I am not reticent.

Q. You do not say anything to them? A. It would be prostituting my friendship with them, if I did.

Q. Books are forbidden subjects? A. Not books, they are talked about sometimes, but not the authorization of them.

Q. How many books have you published? A. Do you mean those of which we have the copyright, or altogether?

Q. How many school-books have you published altogether? A. Nineteen books, I think.

Q. Nineteen books appear as authorized text-books? A. I do not think they are all authorized.

Q. They are all in the list? A. They are not all authorized text-books.

Q. Which are not? A. Those which are recommended for teachers' use.

Q. Were they published by you? A. We have published "Help in the House," and Swinton's Language Lessons.

Q. So that out of the nineteen, two are not authorized? A. I think that is all.

Q. Is that so? A. Yes—if my addition is correct.

Q. Seventeen are authorized? A. Yes.

Q. Is not Swinton's "Language Lessons," as good as authorized? A. No.

Q. How many of it have you published? A. The first edition I think numbered 1,200; and the second edition, I think, 2,000; and the third, 5,000.

Q. 8,200 of these you have published? A. Yes.

Q. When did you get the manuscript of it? A. Sometime in March, I think, or in February.

Q. When did the book appear? A. I think, when I was absent from the country, in June or July.

Q. So in a few months you have published over 8,000? A. We have.

Q. Is not that as good as if it were authorized? A. What do you mean?

Q. For your purpose of spreading it throughout the country? A. It depends upon how we attempt to spread it.

Q. Is it not as good for your purpose as if it were authorized, when you publish 8,000 in a few months? A. It is not.

Q. How many would you have published if it were authorized? A. We might not have published any more.

Q. Do you know that that is in use in the schools? A. I do not know that.

Q. You do not believe that it is in use? A. I cannot say. I have never visited the schools personally.

Q. And you cannot say that it is not? A. I cannot.

Q. You have no opinion whether it is or not? A. I think that it is. That is what we publish books for.

Q. That is, in use in the schools without being authorized. A. I think that it is.

Q. Did Mr. Hughes use his influence to get that spread? A. No.

Q. Or Mr. McLellan? A. No, as far as I know.

Q. With whom did you treat for that book? A. Mr. McMillan, of Ottawa.

Q. Did you glance over the manuscript? A. No! I did not; there was simply the memorandum taken, and the pages marked with what omissions should be made.

Q. What is the royalty to the author of that? A. None at all.

Q. Nothing? A. No royalty.

Q. Did you pay him a lump sum? A. We did.

Q. What was the sum? A. $250.

Q. You will make a good thing out of that? A. That is what we publish it for. We have not sold the 8,000, but we hope to do so.

Q. How many books have you published that are not authorized? Are there any but what appear on this list? Have you published any school books that do not appear on that list? A. We have.

Q. How many? A. I can tell you from the catalogue.

Q. Would you publish a school book unless you thought that there was good probability of its being authorized? A. I think that I would, and so would many other publishers in the city.

Q. Both Mr. Clark and Mr. Campbell say that Hamblin Smith's Arithmetic, and Mason's Grammar would have been on their hands if they had published them without their being authorized? A. It may have been so. We can only say about our own business.

Q. Would it have paid you to publish Mason's Grammar, if not authorized? A. Yes, —the Elementary.

Q. And Hamblin Smith? A. Yes. When Dr. McLellan, and Mr. Hughes wished to reduce the price of Hamblin Smith, we stated that we would not submit it for authorization, if it were put down one cent or five cents lower.

Q. You dictated to the Central Committee the price? A. We did not.

Q. You did so in that case? A. No.

Q. Are you aware that they fix the price of the book? A. I am not.

Q. Did they fix the price of Kirkland's Statics? No.

Q. Who did? A. I did.

Q. You fix the price of all your authorized books? A. Yes.

Q. You find no difficulty with the Central Committee? A. I do.

Q. Did they object to the price of Kirkland's Statics? A. I do not remember.

Q. Did they object to the price for Mason's Grammar? A. No the price is 25 per cent. less than that of the English edition.

Q. Show me what authorized books they have objected to the price of? A. They spoke of the price of Hamblin Smith's Statics. The price was 90 cents. We have made it 75 cents.

Q. What others? A. I do not remember any others.

Q. The rule is that they take whatever price you fix? A. I do not know what they do about it; I cannot say what they do. We furnish the prices, and it is for their consideration.

Q. Do you take any means whatever to find out the opinion of the Central Committee in regard to any book which you intend to publish? A. No, I do not remember having sought their advice.

Q. You take no means whatever to find out what passes in the Central Committee? A. So far as I know, I do not.

Q. None of the Central Committee give you the slightest hint as to whether a book will be authorized or not? A. To the best of my recollection no person has.

Q. Try to plump up your memory. Will you say that you do not try to find out what passes in the Central Committee in regard to text-books? A. I do not.

Q. And neither Mr. Hughes nor Mr. Buchan? I believe that Mr. Buchan is also a relation of yours? A. I have never discovered it.

Q. Is he a relation of Mr. Hughes? A. I do not know.

Q. Is he a relation of Mr. Kirkland? A. I do not know.

Q. Do you know Mr. Scott, one of the editors of Hamblin Smith? A. I do.

Q. Is he related to you in any way? A. Not that I know of.

At this point Mr. Delamere stated that he appeared for the publishers of the *School Journal.*

The Commissioner said that he (Mr. Delamere), was appearing for parties who were not before him in any way, and refused to allow him to appear for Messrs. Adam Miller & Company.

Witness.—A memorandum has been handed to me by the Deputy-Minister, as follows:—"It is stated in Saturday's evidence that I have supplied you with a list of the post-office addresses of trustees throughout the Province. I have no recollection of this. Please let me know." I may state that I applied to Dr. Hodgins after we issued the *Canada School Journal*, for a list of the teachers, and he declined to give me any list. He stated that other publishers and parties had applied for a similar list, and that it had been refused to them.

By Mr. Davin.

Q. When you published the *Canada School Journal*, did you get a list of the subscribers to the *Journal of Education?* A. I did not.

Q. Did you get any information in regard to the *Journal of Education?* A. I do not remember.

Q. Did you find out its circulation? A. No.

Q. Did you get a list of its subscribers? A. I did not.

Q. Have you a list of the teachers throughout the country? A. We have a list of the large majority of them

Q. Do you know all the school sections? A. We do not.

Q. Do you know most of them? A. I think that we have a list of a large number of the teachers in all the school sections.

Q. How did you get that list? A. We applied to the teachers and Inspectors throughout the country.

Q. You did not get it from any one connected with the *Journal of Education?* A. We did not. We did not get it either with the view of issuing the *School Journal.*

Q. Mr. Hughes did not give you any information as to the teachers throughout the country? A. He did not, but he did for the city. He sent me a printed report.

By Mr. Hughes.

Q. Is that printed report open to any ratepayer in the city? A. It is as far as I know.

By Mr. Edgar.

Q. Mr. Campbell stated that he believed you had got a list from the Department. Did you? A. I will state again that I applied to Dr. Hodgins for a list but he declined and not only declined to give it to us but to other publishers and other parties who wished it.

Q. Did you get it from the Department otherwise? A. I did not.

Q. What is your practice as to that. Do you issue circulars to teachers in order to get your books disseminated? A. We do. We send them sample books as a rule.

Q. Where do you get the addresses of the teachers? A. We receive them from some teachers and from a number of the Inspectors, but that has to be got almost every year in order to be of service, as the teachers are changed.

By Mr. Kirkland.

Q. You state that I declined to receive pay. Do you imply that I was ever offered any? A. I stated I think at the meeting that no person on the Editorial Committee, could we think of paying; and that I would like to pay Mr. Houston on account of his being a professional journalist. I will state how Dr. McLellan, Mr. Buchan, and Mr. Kirkland were put on the Editorial Committee. I asked Mr. Houston to take in hand the editing of the *School Journal*. He stated that his work in connection with the *Globe*, would prevent it, but that if I got the help of a number of educationalists, he would join. If I had my choice I would prefer to have one editor only.

Thomas Kirkland, recalled.

By Mr. Hughes.

Q. Did any other publishing house offer you 15 per cent. for the work on Statics, afterwards published by Adam Miller and Company? A. Yes.

Q. In Toronto? A. Yes.

Q. Was this offer made before Mr. Gage made the offer? A. Mr. Gage offered me 10 per cent., and I said that I would not take it as the sale was likely to be small.

Q. This offer was made before the book was authorized? A. Yes; before it was commenced to be printed, three or four months.

By Mr. Davin.

Q. What made you prefer Adam Miller to Mr. Campbell? A. I do not know anything except that I was doing other work for them. I had an appendix to be added to Hamblin Smith's Statics, and I was collecting examination questions and doing other work.

Q. Was that all? A. That was all.

Q. Mr. Hughes did not urge you to take it to Adam Miller and Company. A. I never spoke to him about it in my life.

Q. You had already made an arrangement with Mr. Campbell, had you not? A. No, I said that I would not take any offer until it was all completed.

Q. You had made an arrangement with Mr. Campbell, had you not? A. No, not an arrangement, just the same as with Mr. Gage.

Q. Did not Mr. Campbell feel aggrieved at your taking it out of his hands? A. Yes, I think he did?

Q. You had it in his hands? A. No. I received his offer and told him that I would consider it when I got it finished.

WILLIAM HOUSTON sworn :—

BY MR. EDGAR.

Q. The two charges which are being investigated here are—first, that there is within the Central Committee a ring, the members of which have dishonourable relations with the publishing house of Adam Miller and Company, of Toronto ; and second, that in the preparation of examination papers in connection with the public and high schools, there has been collusion between members of the Central Committee and other parties interested in the work or result of the examination. You are not a member of the Central Committee? A. I am not.

Q. But your name has been mentioned by one or two witnesses, and questions have been asked about you ; I want to know from you, if you have any knowledge of the existence of such relations between any member of the Central Committee and any member of the firm of Adam Miller and Company? A. I have no knowledge of any such relations.

Q. As to the second charge—have you any knowledge or information on that point? A. None at all.

Q. Have you any statement to make? A. It is in connection with Mason's Grammar, one of the authorized text-books. Mr. Gage came to me sometime in June of 1876, I believe —as near as I can recollect the date—and asked my advice as to what he should do. He told me that he was getting out a series of school-books, and asked my advice about the grammar to form part of the series. I recommended that he should publish Mason's Grammar as being on the whole the best I knew, for school purposes in Canada ; I gave him that advice perfectly gratuitously—that is, there was no consideration or remuneration whatever brought up at all between us ; and furthermore, there was no question of the probabilty of the authorization of the book talked of that I recollect, and the matter was never mentioned between us at that time that I remember. I do not know of my own knowledge whether Mr. Gage applied immediately for the copyright or not, but I do know that he secured it and afterwards published the book. I may add that he asked me subsequently to prepare an appendix of examination questions for the book, and that I consented to do so.

Q. Had you any special reason for being competent to advise on the subject of English Grammar? A. Mr. Gage stated to me candidly the reason why he asked me—as a person who had taken an honour course in English in the University ; and also as an examiner at that time in the University ; and also a person who had considerable experience in Public and High School teaching ;—and at the present moment, I have no idea that he intends to offer me anything, and I have no intention of accepting anything. I never had any conversation with any member of the Central Committee as to the probability of any particular book being authorized. I have had conversations with two members of the Central Committee respecting Mason's Grammar. Early in 1876, Prof. Young, the Chairman of the Central Committee, mentioned to me the fact that the Minister of Education had committed to them the question of the authorization of text-books ; and he asked me to name to him any books that I thought would be useful to the Committee in pursuing their labours ; and I recollect mentioning to him, amongst others, Mason's English Grammar, and Abbott's "How to Parse," and spoke favourably of both books. Subsequently to that time, I got a copy of Mason's English Grammar in my possession, and handed it to Prof. Young. I had no copy of Abbott's work. He returned it to me some time afterwards, stating that it was not called for, as the Committee had already a copy of the book in their possession, that is the extent of my conversation on the matter with Prof. Young, as far as I know. The other member with whom I had an incidental communication was Mr. Glashan. In a conversation late in 1876—my impression is that it was in August, or later—I asked Mr. Glashan on one occasion his opinion on some question of parsing, this led to some conversation on English Grammars and English Literature in general, in which both Mason's and Abbott's were mentioned, but no mention was made of the probability of authorization ; that was a question which I studiously avoided. In conversation with Mr. Glashan on that occasion, I learned incidentally Mr. Glashan's opinion on the relative merits of these two books. He preferred very much Abbott's to Mason's. I was brought more directly into connection with this matter by Mr. Campbell's evidence, than in any other way ; and if his evidence is to be believed, I must have known something of the intentions of the Committee. He is

labouring under a mistake in reference to the conversation which took place in Willing & Williamson's book store. That conversation was between Mr. Willing, Mr. Campbell and myself; and in the course of that conversation, the question of authorized text-books came up. I made a remark then to Mr. Willing that, if he had acted on my opinion of Mason's Grammar, which I had frequently given him early in the year, he might have had that copyrighted instead of Adam Miller & Company. Mr. Campbell seems to have thought, from his evidence, that the remark was made to him. The remark was made to Mr. Willing, and not to Mr. Campbell. He said, he thought that hint was given to him in his own ware-room. I do not remember, either in his own ware-room or anywhere else, having mentioned to Mr. Campbell Mason's English Grammar. I may have done so; but I have not the slightest recollection of it.

By Mr. Davin.

Q. Did you tell Mr. Gage of your conversation with Prof. Young? A. I do not recollect doing so.

Q. When you were making arrangements with him as to the Grammar—you are the editor of the Grammar, are you not? A. I am demi-semi editor of it, I believe.

Q. When you were making the demi-semi arrangements, did you mention this conversation with Prof. Young, to him? A. I do not remember mentioning his name.

Q. You did not say you had no doubt that it would be authorized? A. I did not.

Q. You knew that it would be authorized? A. I did not.

Q. Did not Prof. Young ask you to give him the book? A. He asked me to give him a list of books which would be useful to the Committee in prosecuting their work.

Q. You say that this was early in 1876? A. I think so.

Q. He mentioned to you the fact that the Minister of Education had committed to them the authorization of text-books? A. Yes.

Q. And he asked you to recommend him books? A. If you put my sentence in your words—yes. Prof. Young asked me to name some books, which, in my opinion, would be useful to the committee in prosecuting their labours.

Q. And you intended to mention Mason's Grammar? A. I did mention it.

Q. There and then? A. Much about the same time, I do not know that it was at the same time.

Q. When did you have the conversation with Mr. Gage about Mason's Grammar? A. In June, 1876.

Q. You recommended him to publish it? A. I did.

Q. Had you previously visited Mr. Campbell? A. Several times.

Q. Did you talk about Mason's Grammar? A. I am not aware that I did at any time.

Q. What books did you refer to? A. I talked about Campbell's Geography on the occasion he refers to, that I have a recollection of.

Q. What does he mean by the courtesies which passed? A. I am not aware except the ordinary ones between two gentlemen.

Q. You made no arrangements with him about any books? A. Not at all.

Q. That was before you saw Mr. Gage, in 1876? A. I do not know, he is an old acquaintance of mine, of 10 or 12 years' standing.

Q. Have you talked with Mr. Gage as to the probability of Mason's Grammar being authorized? A. I have.

Q. You have expressed an opinion that it would be? A. I have, I believe.

Q. Have you as to the others? A. Yes. I do not recollect any distinctly; yes, I have, as to Fleming's books. I was equally interested in that. I was demi-semi editor of that also.

Q. Then it is not true that Mr. Gage never took any means of finding out whether a book would be authorized, or not. He conversed with you, did he not, as to the probability of Fleming's Analysis being authorized? A. I think that he did.

Q. And as to the probability of Fleming's Analysis? A. Yes.

Q. As to that conversation in Willing and Williamson's shop,—were you addressing

Mr. Willing or Mr. Campbell when you said: "If you had taken the hint, you might have had the book"? A. I did not say "hint."

Q. What? A. My opinion as previously expressed to him—to Mr. Willing.

Q. Was that given in the way of advice? A. I do not know that it was, I knew that Mr. Willing was not a publisher, and therefore it was not likely that I gave it as advice.

Q. Do you remember the conversation very distinctly? It is more likely that you gave the tip to Mr. Campbell than to Mr. Willing? A. I did not give it to anybody.

Q. Did you say anything about Mason's Grammar to Mr. Campbell? A. I am not sure.

Q. What he says, may be quite true? A. It may be, I have no means of confuting it.

GEORGE PAXTON YOUNG, sworn:

BY MR. EDGAR.

Q. You are Chairman of the Central Committee? A. Yes.

Q. You are aware of these two charges that are being investigated under this Commission? A. I am.

Q How long have you been Chairman of the Committee? A. Since it was first established.

Q. Will you state for the information of the Commissioner what knowledge you have of either of these charges? A. In regard to the first, I have no knowledge—that there is any ring within the Central Committee of the kind referred to. For myself, I may say, I was so ignoraut of Toronto celebrities that until this enquiry took place, I did not know that any such persons as Beattie and Gage existed. I thought that Adam Miller was existing in the flesh. As to my colleagues, I know nothing causing me to have a suspicion that there is any such thing in regard to them. No such suspicion was ever created in my own mind by anything which ever passed in the Central Committee.

Q. Or out of it? A. Or out of it.

Q. With reference to the second charge, have you any knowledge of that? A. Personally there has been no collusion between me and any person interested in the result of the examination or any other person whatever; and with respect to my colleagues, I have no reason to believe that anything of the kind has happened in any case—none whatever.

BY MR. DAVIN.

Q. Do you remember the conversation with Mr. Houston? A. I remember indistinctly the fact of the conversation; but unless Mr. Houston had refreshed my memory, I could scarcely have repeated the details. I remember the fact of the conversation.

Q. You are very much occupied in metaphysical studies, are you not? A. I am Professor of Metaphysics.

Q. And mathematics? A. No.

Q. But you still pay a great deal of attention to mathematics? A. No, I have not for many years.

Q. You do to metaphysics? A. That is my profession.

Q. Do you write on metaphysics? A. I write metaphysical articles.

Q. You have written on it for English journals? A. No.

Q. For American journals? A. For journals in Canada.

Q. Metaphysics is a fascinating study, is it not? A. I like it very well, but people generally have a different opinion.

Q. Do you see that book of examination papers of Dr. McLellan? A. Yes.

Q. You are aware, I suppose, of the similarity between his examination papers in 1877, and certain questions in that book? A. I have listened to the evidence brought forward, and I am aware of the facts which have been brought out. I have also compared the facts mentioned in the memorandum published in the *Mail* with Dr. McLellan's book and with the examination papers.

Q. As the chairman of the Committee, you know who sets the examination papers? A. I do.

Q. Did Dr. McLellan set the examination papers for Physics and Chemistry in July, 1874? A. I take it for granted that he did; I have no doubt of it.

Q. Did he profess to do it—was it his business to do it? A. As far as I recollect, it was.

Q. Was it his business to set them for 1876? A. I believe so.

By Dr. McLellan.

Q. You and I have been associated in the committee since its first establishment? A. Yes.

Q. Have you ever found me urging the authorization of any single book whatever? A. You have taken your part in the discussions in the Central Committee, but you never took any special part or any such part, which would lead me to believe that you were acting unfairly.

Q Did I recommend the authorization of Kirkland's Statics? A. I think that I was the first who introduced it and recommended it. You approved of the idea of recommending it, I think.

Q, Did I recommend Hamblin Smith's Arithmetic, or Mason's Grammar, or Swinton's Grammar? A. I do not distinctly recollect in regard to Hamblin Smith's Arithmetic.

Q. You remember about the Youngs? A. Though my memory of what Mr. Houston said is not very distinct, my impression is that it is correct, and that the book was first brought to my recollection by what he said to me about it. I think that I met him on Yonge Street, and as the matter of text-books was then before the Committee, I asked him as an acquaintance and a gentleman whom I knew to be well acquainted with that subject, if he knew of any grammars that would be suitable for the Committee. I thought it my duty to obtain information from any source I could. I asked him that question though as I repeat, the details of that conversation are very indistinctly before me. I have a recollection of looking over the book. Whether I took it home or not, it was afterwards laid on the table; I do not remember by whom.

Q. Do you remember that I was not on the sub-Committee which recommended this book? A. Yes, I recollect that. The work of the Committee was divided without any formal appointment of sub-Committees, as a rule, among the different members. One set of members taking those with which they were familiar, and others those with which they were familiar. You were not one of those to whom English grammars were committed.

Q. Do you remember my asking your opinion as to the propriety of my issuing a book of problems for teachers? A. I have no distinct recollection of it.

Q. What was your opinion as to the propriety of it? A. I saw no impropriety in it whatever. I, for my part, saw no impropriety in it whatever.

Q. You say that you compared the memorandum in the *Mail* with the books on Natural Philosophy and Arithmetic? A. Yes, I compared both memoranda. I had a reason for not doing it at the time, but after his Lordship was appointed Commissioner, I did.

Q. Since Natural Philosophy is set for young students, do you consider it improper to take the questions from any ordinary text-book? A. I do not.

Q. As a matter of fact, when you were Examiner in Natural Philosophy and Algebra, did you not do it yourself? A. Very little. My own practice was to prepare any riders I wanted myself; that was the rule. I did deviate sometimes from it, but not often.

Q. You sometimes copied the exact riders from the text-books in your Examination Papers, for instance, in Natural Philosophy and Algebra? You have stated in some cases "text-book?" A. That is the case.

Q. You do not consider that there is any impropriety in it? A. If I thought that there was any impropriety in it, I would not have put down "text-book," and called the attention of the world to the impropriety.

Q. Do you consider that it was in effect, where the papers were so set, equivalent to

the Examiners giving the students the Examination Paper before hand? A. Certainly not.

Q. Or in Arithmetic? A. Certainly not.

Q. Do yon consider the Arithmetic Paper a fair test question for all candidates whatever? A. I thought it rather difficult.

Q. You have examined the Book of Problems? A. So as to become acquainted with the general nature of it. I do not profess to be acquainted with all the details.

Q. Can you form any idea as to the variety of the type questions? A. No; my time was fully occupied, and I have contented myself with looking at the general character of the book.

Q. Do you think that it would be easy, after looking at the book, to set a paper and avoid these type questions? A. Certainly not.

Q. You think that it would be difficult? A. In the first place, I think that it would be perfectly impossible; and in the second place, most undesirable.

By Mr. Glashan.

Q. Have you ever asked questions that you thought were original, and afterwards found that they had been actually proposed before? A. Something like that happened in regard to one rather peculiar question—one which I flattered myself I had discovered for myself. It turned out afterwards that the question which I gave in that particular case had appeared in the Examination Paper, presented in a general form.

James Alexander McLellan, sworn:—

By Mr. Edgar.

Q. You are a member of the Central Committee? A. Yes.

Q. You know these two charges which are being investigated by his Lordship. The first is, "that there is within the Central Committee a ring, the members of which have dishonourable relations with the publishing house of Adam Millar & Co., of Toronto." The second is, "That in the preparation of Examination Papers in connection with the Public and High Schools, there has been collusion between members of the Central Committee, and other parties interested in the work or result of the Examinations." Give us your evidence as to any facts within your knowledge relating to these charges, and relating to the particulars which you have heard brought forward in relation to your own name, and Mr. Kirkland in this evidence. Is there a ring to your knowledge within the Central Committee having dishonourable relations with the publishing house of Adam Millar & Company, of Toronto? A. I am not aware of the existence of any such ring.

Q. As to the second question of collusion, do you know of collusion in the preparation of Examination Papers in connection with Public and High Schools between members of the Central Committee, and any parties interested in the work, or result of such examinations? A. I do not.

By Mr. Davin.

Q. You asked Professor Young whether he took any questions from text-books in his Examination Papers, and he told you that when he took any questions or riders he gave the word "text-book;" when you take a rider, do you put down the source from which you take it? A. Not generally.

Q. Did you put "Teefy" after the questions which you got from Mr. Teefy? A. What questions. These two questions that he sent me and that were nsed in the December Paper of 1873?

Q. You did not put "Teefy" after it? A. I do not think so.

Q. Where were you educated? A. I graduated at the University of Toronto.

Q. Were you a fellow stndent of Mr. Kirkland? A. Yes.

Q. You have been very intimate with him? A. Exceedingly so.

Q. What books have you prepared with him for publication? A. I have been associated with him in the preparation of the Book of Problems, that is all, I think.

Q. Have you prepared any of your Examination Papers in his private room? A. No.

Q. Do you ever enter it? A. Yes.

Q. Do you ever work there? A. No, I have sometimes noted down an elegant problem, or one I thought so from his selection.

Q. You have been accustomed to talk with him about the results of examinations, have you? A. I do not know of any special conversation. We have talked, I suppose.

Q. Have you received hints from him as to what the Examination Papers should be? A. I do not think so.

Q. Did you ever receive from him a hint as to setting an Examination Paper? A. I cannot say. I might have received a hint for the setting of the paper for the intermediate, or something of that kind.

Q. Did he ever supply you with questions? A. No.

Q. Problems? A. No.

Q. Riders? A. No.

Q. Do your questions test the capacity of students educated at different institutions throughout the country? A. They are supposed to do so.

Q. Would it not be an advantage to Mr. Kirkland's students over others, if you based your examination papers on his lectures? A. I think not. Of course, if he knew beforehand what questions I was going to set, no doubt his students would have an advantage; but I do not think that it would be worth while if you take into consideration the comparative insignificance of those subjects in which collusion has been attempted to be established, in the whole 3,000 marks, these subjects not amounting to more than one-eleventh.

Q. Have you a good knowledge of Chemistry? Have you paid special attention to that subject? A. I have read a good deal, I do not profess to be an expert.

Q. Did you take high marks at the University? A. I think that I took honours in some part of the course.

Q. Did a candidate for the certificate in 1875, write to you as to the Chemistry papers set? A. I think that he wrote to Prof. Young. I think that there was something also in regard to the Arithmetic.

Q. Was he dissatisfied with the marks which you gave him? A. I think so. I think that I gave him 80 or 85 per cent., and he wanted 100.

Q. Did you answer the letter? A. I think so.

Q. In answer did you send the Examination Papers? A. I do not know. I showed the letter to Dr. Ryerson. He wrote to Prof. Young.

Q. In answering the questions, did you quote from four or five books? A. I do not remember.

Q. Did you show that Examination Paper of 1875 with the letter of the student in question to Mr. Kirkland? A. Which Examination Paper?

Q. The Examination Paper of 1875? A. Not that I remember.

Q. Did you get any assistance from Mr. Kirkland in answering the questions which you sent? A. If I answered the questions, I did not.

Q. When did you become High School Inspector? A. In 1861.

Q. Was Mr. Kirkland the only High School Master who supported you then? A. I do not know.

Q. Did you two months afterwards use your influence to have Mr. Kirkland appointed Normal School Master? A. I used whatever influence I had, to do so.

Q. You are associated with him as one of the editors of the *Canada School Journal*? A. Yes.

Q. And member of the Senate. A. Yes.

Q. Did you canvass together? A. I think that we very likely wrote to our friends.

Q. Do you write to your friends to get appointed examiners? A. I cannot say.

Q. Do you make a rule of appointing only your friends as sub-examiners? A. We do not.

Q. Are you paid as one of the editors of the *Canada School Journal*? A. I am not.

Q. How are you paid? A. I never received a cent. I am simply working for the

good of the profession at large ; I do, I suppose, ten times as much work throughout the country as I do in connection with the *Canada School Journal.*

Q. Did you use your influence to have Mr. Buchan appointed Inspector of High Schools? A. I spoke very favourably of him to Dr. Ryerson, and I think to Prof. Young. Mr. Buchan and I had not been on particularly good terms, but I spoke because I thought him an excellent man. I thought that formerly he had not been friendly to me.

Q. Do you take your questions from books? A: I take them largely from books.

Q. When you do not suck the brains of some friends of yours? A. Though I got some questions from Mr. Teefy, in 1873; I am not accustomed to do that.

Q. Have you got questions from Mr. Baker? A. I have, I suppose got four or five questions from him on different occasions.

Q. Do you see any difference between taking questions from the Examiner, and taking questions from the teacher? A. I do not know that any teacher gave me any questions, who had any student coming up for examination.

Q. Mr. Teefy swore that he was teaching three students? A. I do not know that. Those students did not come up for examination. I took the precaution not to set those two questions until the subsequent examination—the December examination.

Q. Have you sold Adam Miller and Company a book with examination papers in Arithmetic and hints to answers thereto? A. I am interested in it.

Q. You are paid in a royalty? A. Yes.

Q. It is your interest that that book shall circulate as widely as possible? A. It is, no doubt.

Q. Did you canvass any teachers? A. I think not.

Q. Did you canvass Mr. Robertson? A. I casually mentioned it to him as a friend.

Q. To how many other teachers, did you mention it? A. Perhaps to half a dozen. I have my own friends among them.

Q. You are in a position to help these gentlemen, are you not? A. Well, Yes.

Q. You promised Mr. Teefy to use your influence, which was great? A. I have, I suppose, a little vanity like others. I may have over-estimated it; I am helping men whom I consider deserving, every day.

Q. The mere mention of this book between these gentlemen, is equivalent to canvassing? A. I think not. Mr. Robertson had prepared a couple of Examination Papers for the book, and the thing was merely casual.

Q. You say six or seven teachers? A. I do not. I say that would be the outside limit, I think.

Q. Do you remember when Hamblin Smith's Arithmetic was authorized? A. I do not.

Q. Was it authorized before publication? A. I do not think so.

Q. Has it ever been submitted to the Central Committee? A. I think not, since the adaptation.

Q. Then, in point of fact, it is not authorized? A. No. I suppose that the publisher assumed that it was on the way to authorization, on account of the note.

Q. Did you ever say to any one that Prof. Young was a humble good man, whom you could lead as you liked? A. I certainly did not.

Q. Did you ever boast to any one of your influence over him? A. No.

Q. Or that with Hughes and Buchan under your control, you controlled the Central Committee? A. Certainly not. Mr. Hughes and I have been on opposite tickets for some time.

Q. Did you seek to pack the Central Committee with your friends? A. No.

Q. Or the Council of Public Instruction? A. No.

Q. Do you know that Mr. Scott, the Editor of Hamblin Smith, is a brother-in-law of Mr. Hughes? A. I do not.

Q. Does any shade of marital relationship bind you to that lucky firm? A. Not that I am aware of.

Q. You are aware that the copyright for Hamblin Smith was secured six or eight months before it was authorized? A. I did not know that it was secured.

Q. Did Mr. Gage ever consult you respecting Hamblin Smith? A. He did not.

Q. He never wrote to you? A. Never.

Q. And you never wrote to him? A. No.

Q. He has never consulted you at all? A. No.

Q. On any subject? A. Not on the authorization of text-books.

Q. What did he consult you about, when he consulted you? A. I do not know whether he consulted me in a formal or technical signification. I think that he asked me about the *Canada School Journal*, and I discouraged him. I said that it would be a great risk, and I refused to be put upon the Editorial Committee as I supposed that he would hold me responsible for writing a good deal, which my health would not allow me do.

Q. Was that conversation in your study? A. I think that it was in his office.

Q. Then you visited his office? A. Undoubtedly. It was while the Book of Problems was coming out. I go in sometimes now in connection with the *School Journal*.

Q. How many times in the last year have you spoken with him? A. I cannot say, but a good many times.

Q. Have you spoken to him about your examination papers? A. Undoubtedly.

Q. Did you ever speak to him about Mason's Grammar? A. About the authorization of it?—certainly not.

Q. You never spoke to him about the likelihood of any book being authorized? A. I never gave him the slightest possible hint, directly or indirectly, of any book which we were going to authorize.

Q. Did you ever give Mr. Houston a hint? A. No.

Q. About Mason's Grammar? A. I do not know that he ever spoke to me about it. I did not know that it was to be authorized.

Q. In what month did you go to England? A. I think that I sailed from Quebec on the 8th of July, 1876.

Q. How long did you remain in England? A. We left Liverpool, I think, on the 8th of December. I was in Ireland and Scotland, as well as England.

Q. Where did you see Mr. Gage? A. I think at my house, a month or so before I went away.

Q. Did you have a conversation about visiting England? A. I mentioned it.

Q. Did he ask you to look out for text-books then? A. He did not.

Q. He said nothing to you? A. Nothing in connection with that.

Q. What was the character of the letter of introduction which he gave you? A. It was to Rivington's, with the view to get a further introduction from them to Hamblin Smith.

Q. Did you receive a gratuity of $500? A. I think that the Minister of Education said it was not quite a gratuity. I picked up a great deal of information, visiting a number of training colleges and elementary schools in England, Ireland and Scotland, and I suppose he thought the information would be valuable.

Q. What salary have you? A. $2,000 a year, and travelling expenses.

Q. And $200 a year as member of the Central Committee? A. Yes; and it is hardly earned.

Q. What more? A. That is all. We have not had the travelling expenses until this year.

Q. How much do you make out of your books? How much do you expect to make out of the Examination Papers? A. I hope I shall make a good deal.

Q. What is the royalty you get? A. Ten per cent.

Q. So for every book that is sold you get ten cents? A. Yes.

Q. Are there any other pickings attached to the place? A. There are not, I believe, so far as I am concerned. The Book of Problems and the Hints to Answers in connection with it, are the only sources of pickings I have, independent of what I earn

Q. When you were in England, did you receive a present of books from Rivington? A. I did.

Q. What was the value of it? A. I could not say.

Q. Was it worth £100? A. Certainly not.

Q. How many volumes were there? A. I cannot say. I received some volumes of Classics and English Literature, and some volumes of Sermons.

Q. Having received that present, you wrote a letter on the 8th of November recommend-

ing Hamblin Smith? A. I do not know whether before or after receiving the books. I remember writing the letter but I do not know the date.

Q. Has Hamblin Smith's Arithmetic been authorized? A. The facts have been placed before you.

Q. How came you to recommend that book? A. Some friends had sent me newspapers, which showed that there was a great storm raised in consequence of the supposed difficulty of the Arithmetic Papers. I had been lecturing before the teachers, trying to get them to adopt the independent method of investigation. I found that Hamblin Smith's book gave prominence to the independent or unitary methods, and I thought that by bringing it before the teachers, it would enable them to pass the examination.

Q. Was it the Arithmetic Papers of 1876 that the storm was about? A. There were storms every year.

Q. Were all the questions in 1876 original? A. I think that most of them were.

Q. Whom did you get those that were not original from? A. I am collecting questions for examination papers all the time. One or two of these might have been furnished by Mr. Baker. I got them from no teacher whatever.

Q. Have you any doubt that Mr. Baker assisted you? A. He did not assist me in preparing that paper. I may have used a question or two that he furnished me on a previous occasion.

Q. Are you not positive? A. I am sure of one; but not of any other.

Q. Did he assist you in preparing any of the Examination Papers in 1875? A. I think not.

Q. Or in 1874? A. In none of these years. I may have got in the course of time some five or six questions in Arithmetic, not to be used for any particular examination.

Q. Could your Examination Paper for 1876 have been answered in three hours? A. I intended 75 per cent. to constitute the maximum, but unfortunately, no note of the fact was put at the head of the paper. I think that Mr. Glashan, in examining the paper, made allowance for the difficulty or length of the paper.

Q. In 1874, you prepared papers on Chemistry and Physics; and in 1876? A. Yes.

Q. And Natural Philosophy and Arithmetic papers for 1877? A. Yes.

Q. Was the meeting which elected you President of the Ontario Teachers' Association packed? A. Not that I am aware of.

Q. When were you elected? A. I think sometime in August.

Q. How many teachers were there? A. I do not know. I have heard some estimate the number at three hundred.

Q. Did you send for teachers from various parts of the country to come and vote for you? A. I do not think so.

Q. Did you send for one? A. I don't remember.

Q. Did Mr. Kirkland interest himself very much in that election? A. I do not know that he did.

Q. Did Mr. Hughes? A. I do not think that he was considered favourable. I have no special reason for thinking so; but I think that he was not very favourable, in the first instance, at all events.

Q. Under the Act of 1874, liberty was given to the booksellers and publishers to compete with the Depository Branch Department—did you have a conversation shortly after this with Mr. Gage? A. Do you mean with regard to the prices of text-books?

Q. I mean with regard to books, which it would be advisable for Mr. Gage to publish? A. No; I certainly had not.

Q. Each member of the Central Committee is a committee to report on library and prize books? A. I am not aware of that.

Q. Mr. Crooks stated it in his evidence? A. I do not think he said that every member is a committee. If so, I think that he is not correct. I was not aware of it. Oh yes, to examine prize books. Yes, that is correct. I misunderstood—I thought that you alluded to text-books.

Q. Have you reported on any prize or library books? A. No.

Q. Mr. Crooks stated that one of his objects, in making the change, was to prevent a monopoly? A. Yes.

Q. With you and other members of the Central Committee, editors of their journal, and with their relations with the Central Committee, have not Adam Miller & Co. a monopoly? A. I do not think so.

Q. Have they not the inside track, as Mr. Campbell said? A. No.

Q. Are they on the road to a monopoly? A. Not as far as I am concerned. I do not intend to play into their hands, or the hands of any other man.

Q. What effect does authorization have? A. It depends upon whether the book will have a great circulation, then it means a good deal.

Q. The Act says, that no book shall be used in the schools, unless authorized? A. Yes. No teacher can force its adoption unless it is authorized.

Q. Mr. Crooks says: "Clause 6, to avoid any imputation of partiality it is intended to exclude all officials in the Department of the Minister and members of the Central Committee from being in any way concerned in the preparation of new books or interested in works which may be retained." Have you not broken that rule. A. I think not.

Q. In publishing your Examination Papers? A. I think not. Mr. Crooks has decided on that.

Q. Is not your book being introduced into schools by the teachers that you canvassed? A. I think that you ought to take that back. As a candid man, you know that I have not canvassed

Q. Are the Examination Papers being used in schools by teachers whom you asked to introduce it? A. Teachers use it themselves pretty largely. Pupils, I think, do not use it very much, except advanced pupils preparing for certificates.

Q. But they use it? A. I think that they do—not very generally, I am sorry to say.

Q. One of the duties of Trustees is to see, that no unauthorized books are used in the school and that the pupils are duly supplied with a uniform series of authorized text-books sanctioned and recommended by the Council of Public Instruction. Have you not contributed to the breach of the law and the breach of the rule laid down by Mr. Crooks? A. I have not. The teachers in the High Schools are at liberty to use any book of problems whatever. They use Hamblin Smith's Book of Problems in Algebra for the sake of getting good examples on that subject.

Q. Mr. Crooks says that he is guided by the Central Committee in reference to the books he will sanction, so that it has become an Advisory Board as well as a Board of Examiners? A. I suppose so, to a certain extent.

Q. The Central Committee can secure the authorization of what books they please, practically? A. I would not say that. We recommend books after careful examination; there is a sub-committee appointed to examine the book: that sub-committee reports, and then generally, some members of the Central Committee re examine or look over the books again.

Q. Copp, Clarke & Co. wrote to the Minister of Education in 1877:—

"Toronto, May 11th

Hon. Adam Crooks,
Minister of Education.

Dear Sir,—As the publishers of the authorized arithmetics, we beg most respectfully to draw your attention to a work just issued, of which one of the inspectors, Dr. McLellan, is joint author, "Examination Questions in Arithmetic," in which announcement is made and commendation given to an arithmetic to be published, thus throwing official sanction over an unauthorized book, in direct opposition to one of the duties of an Inspector. The fact of Mr. McLellan, an Examiner, having a permanent pecuniary interest in any book, the certain result of which must be to induce him to use influence to promote its sale, is, we submit, incompatible with the proper discharge of his duties, and a position which we think you will view with disfavour. Respectfully submitting this matter to your consideration,

We remain,
your obedient Servants,
Copp, Clark & Co."

Q. Is not that so? A. The Minister of Education decided that.

Q. Can you discharge your duties as Examiner properly, having published that book? A. I think so. I shall try to do so, as long as I am Examiner.

Q. Should not a man in your high position be above suspicion? A. It is hard to be so, so far as some minds are concerned. Of course, I should try to act discreetly so as not to give even the most malignant persons ground for complaint.

Q. Can you be above suspicion, having published that book and being liable to use your great influence to promote its sale? A. I think so. It is common for Examiners to publish books of that kind.

Q. Copp, Clarke and Company say that for an Examiner and Inspector to publish a book and retain a living pecuniary interest in it, must have a certain result; what result would that be? A. I do not know what result that means. Probably it would have the result of preventing his Book of problems from having so large a sale.

Q. Would it not lead you to canvass the teachers whom you might promote? A. No.

Q. Did you not canvass Mr. Robertson? A. The fact is there, you can call it what you please. Mr. Robertson stated that when he asked me to use influence to get him in a head-mastership if I thought him worthy, he did not suppose that I would do it because I asked him to introduce the book into his classes. No man will ever say that.

Q. You do not think it induced him to introduce a book—you being an Examiner and a member of the Central Committee? A. I agree with Professor Young, that it is a proper thing to do.

Q When did you speak to Mr. Gage about the *Canada School Journal?* A. Sometime before its publication, I do not know how long. I tried to discourage him at first. I gave him to understand that I could not help him very much at all events.

Q. Did you converse with any one else besides Mr. Gage, about the publication? A. I do not think that I did—not to my recollection.

Q. Mr. Crooks said in his evidence in regard to your Examination Papers, "that the first objection that arose to him, was that the book would be sent forth with the particular advantage that the examiner and the author was the same person. Is that so? A. Is what so?

Q. That the Examiner and the Publisher of the book is the same? A. I suppose it is.

Q. And Mr. Crooks further says, that candidates who were being examined on these subjects would naturally derive great advantage from being familiar with your mode of illustration." Is that so? A. I dare say that the very fact of the author being an Examiner, would make his book more valuable and sought for.

Q. Especially if the Examiner and the Inspector is also the President of the Teachers' Association? A. I do not see that there is any connection.

Q. Then especially if the author and Examiner, and Inspector, and member of the Central Committee canvassed for his book, it would promote its sale? A. I have addressed hundreds of teachers—perhaps a thousand teachers, and have not canvassed them at all.

Q. Mr. Crooks said that your position would probably make your book more valuable, commercially? A. It is very likely that it would; but the commercial value, I have the vanity to think, does not depend wholly on my being an examiner.

Q. He said that your position would facilitate the use of the book? A. I have already said that the fact of the author being an examiner, would perhaps lead to the book being more sought after.

Q. He said, that if you took all your questions from that book you would fall into the evil which, in his consideration, it would be most desirable to avoid. Did you not fall into that evil? A. I do not think so.

Q. You have heard the evidence as to the similarity between the Examination Papers and the questions in your book? A. Certainly.

Q. And you do not think that you fell into the evil? A. No; because these questions are found in preceding Examination Papers, and are in all text-books. The book is a collection of the best problems that can be found in English and Irish text-books.

Q. Has a member of the Committee a right to take an undue advantage of his position? A. He has no right to prostitute his position in any way, of course.

Q. Or an examiner? A. Do you mean that the examiner has no right to publish a book?

Q. I want to know whether you have, as an Inspector and a member of the Central Committee, any right to have an undue advantage in regard to publications? A. I con-

sulted Mr. Crooks in regard to it; and would have taken his advice. I have been asked to get out another book; and before doing so, I asked Mr Crooks whether it was right or not, that I should do so.

Q. All your evidence and the whole argument on your side, has gone to show that the teacher can prophecy with almost certainty what the examination papers will be? A. Not what the identical examination papers will be; but, of course, a provident teacher will be able to form a very good conjecture what the examination paper will be, when the paper is set to illustrate a very narrow course.

Q. Is that a good thing? A. As far as the elementary classes are concerned, I do not see much objection to that.

Q. In Mr. Kirkland's case, you seem to have made the certainty absolute? A. I do not think so.

Q. Had you any conversation with him before the examinations in regard to the papers of 1874, and 1876, and 1877? A. Not that I am aware of. There might have been some talk of the examinations, but nothing in regard to what was going to be set.

Q. In regard to that book of Examination Papers, did you, in setting the questions for the arithmetic of 1877, take them out of the book? A. I did not. I may have taken one or two questions, but the great majority you have referred to, certainly I set without reference to it.

Q. You had the book before you? A. Undoubtedly the book was on the table.

Q. You looked up certain questions and took one or two from the book? A. I think it is likely I took one or two suggested by the book.

Q. You did not take care that the examination questions should not be similar to the questions in the book? A. Professor Young has stated that it would be impossible to set such a paper. On the whole, I took very great care. The fact, that out of 45 questions, you can only find three or four similar, shows that I took great care; the first-class questions affected only 30 or 40 candidates. The other papers were set for 10,000 or 12,000 candidates. Is it not fair to think that if I wanted to sell the book, I would have set the other papers from it.

Q. When you do not take the questions from other examiners, do you become a plagiarist of yourself? A. I constructed that Examination Paper myself mainly, I think.

Q. Mr. Crooks said that it would be a deplorable thing if there were any similarity between the teaching of Mr. Kirkland and the examinations of yourself; do you think so? A. Mr. Kirkland does not teach the subject at all.

Q. I am not speaking of the subjects which he teaches and you examine in? A. I do not think that Mr. Crooks could have meant that, because if the teacher confines himself to the official programme, and the examiner sets fairly on the leading topics of that paper, there must be a similarity, otherwise an examiner will be pilloried as I have been again and again.

Q. If the teacher can always anticipate the questions of the examiner, is not the examination a farce? A. That is not putting it fairly; of course, we can anticipate the subjects, and sometimes the questions.

Q. Have you ever described yourself as the directing mind of our Institutions? A. I have been honored with the title by the *Mail*. I may have said it jokingly. I never assumed such a position.

Q. Did you ever say that you ran the whole machine? A. Not much.

Q. Nothing equivalent to it? A. No.

Q. Has the house of Adam Miller and Company an advantageous position because of its connection with you and others? A. Not so far as I am concerned. I worked as readily for Mr. Campbell's books as for Adam Miller's, when I thought that they were good books.

Q. If they had such an advantage, you could not say that you never had any idea of the existence of a ring? A. I do not understand.

Q. If Adam Miller & Co., owing to the fact that you and others of the Central Committee are their editors, had any advantage from that, would not there be a ring? A. That means I understand, that if there is a ring, there is a ring. As far as my knowledge is concerned, there is no ring, neither Adam Miller & Co., nor any other publishing firm have obtained from me any information which would warrant the insinuation or intimation that there is any corrupt ring.

Q. But they may gather from you the books to be authorized? A. No. They do not gather it from me, I will say that not one member of the firm has ever even hinted to me, that they desired the use of my influence to get any book authorized.

Q. They never said it directly? A. No; nor dropped a hint.

Q. Can you conceive their journal condemning a book published by Adam Miller & Company? A. I can, if I am one of the editors of it.

Q. Mr. Crooks said that he could not expect it? A. I tell you that as far as I have any right to it, I claim to be afflicted a little with the malady of thought, and if a book is submitted to me for review, I will do it to the best of my ability, no matter whose it may be. If that does not suit the journal, of course my name vanishes as one of the editors.

Q. The Central Committee are absolute as to the price of books? A. I cannot say; but we have to submit the price to Mr. Crooks.

Q. He says: "I would not assume to come to a different conclusion unless I thought the price excessive;" he never has objected to the price? A. I do not remember that he has.

Q. What principle puts a price on a book? A. I think no principle particularly. Mr. Hughes and I were appointed a committee to wait on the various publishers and discuss the prices of books to be authorized.

Q. When did you discuss the price of Kirkland's Statics? A. I do not know.

Q. It is sold for a dollar? A. Yes.

Q. Mr. Baker stated that Mr. Kirkland's book was cribbed from other books on the subject:—is not a dollar too high for a plagiarism? A. I do not think, compared with other books—Hamblin Smith's and others—which we have been using, that a dollar is too high. It does not matter where it is taken from so long as it is a good book and well adapted for the wants of the country. I do not think he meant that the book work did not have some originality; but he referred to the problems, the same as Professor Cherriman's work.

Q. When you were examining Mr. Slater, why did you quote from the marks he made in 1876? A. It was the only one I had before me.

Q. Was it in order to terrify persons from coming and giving evidence? A. Certainly not.

Q. For what reason was it that you wanted the list of teachers who had written to the *Mail?* A. I do not know. There has been what is called a ring of sore-head teachers.

Q In Mr. Belford's evidence, you said that it was thought "we should get at these parties?" A. I think that it is a wrong report. If I wanted to get at the parties it was merely to show all the grounds.

Q. Was it that they should be marked men? A. No.

Q. Have you not power to promote and help the promotion of school-teachers? A. I have some power in that way. I suppose every inspector has.

Q. If you got at these men, you would not be likely to promote them? A. If a man proved to be a malignant enemy I do not think that I should recommend him, if I had a friend who was equally well qualified.

Q. Not a man opposed to you? A. I do not think that.

Q. With your influence with Professor Young—and you stand well with the Government—you would use that against any such man? A. I will injure no man, but in a choice between two parties for a given position, if one man has attempted to seriously injure me and the other has not, I should choose the latter.

Q. Have you not been very angry indeed that any criticisms have been offered on the Central Committee? A. No. I have asked for fair criticisms. I have asked teachers throughout the country to criticise our work in regard to the intermediate examinations, and so on.

Q. Did you prepare the Examination Papers in 1873? A. Yes, except the two problems which Mr. Teefy furnished. I do not think there was any other source that I know of.

Q. You do not think that you got help from any other source? A. I do not remember getting any assistance.

Q. Was it a wrong thing to take these problems and helps from him? A. As long as I believed that he had no pupils coming up for examination, I do not think so.

Q. In your letter of the 22nd of January, 1873, you say, "By the way I am very hard worked this half-year; would you have time to make me up a few problems and questions in mathematics in strict confidence." What did you mean by "in strict confidence?" A. I supposed he would not divulge anything to any person.

Q. Then you knew that you were doing wrong? A. He would not divulge to the candidates.

Q. You knew you were doing wrong? A. I did not.

Q. Why did you say that? A. I supposed that he would be confidential; for the University examinations, it is a common thing.

Q. It is a common thing for one examiner to take from another? A. It is a common thing for examiners to take questions from friends who are not interested in any candidates coming up for the examinations.

Q Is it common for examiners to get questions from teachers and teachers preparing pupils for these very examinations? A. He was not preparing pupils for these examinations. He had two pupils for the July examinations, but these were set for the December examinations.

Q. "That in the preparation of examination papers in connection with the public and high schools there has been collusion between members of the Central Committee and other parties in the work or result of the examinations." Mr. Teefy was preparing students for the very examinations that you prepared examination papers for: Can you, on your oath, answer the question whether such collusion existed, in the negative—was not there collusion between you and Mr. Teefy? A. I think not.

Q. Was he not interested in the result of the examinations? A. He was in the July examination perhaps—I do not know it.

Q. And you knew he could teach and coach students for the examinations? A. I suppose I intended to use these questions for the Normal School Examinations, in which he was not interested at all.

Q. He was not teaching students for the Normal School, coming up for these very examinations? A. Not the Normal School, but for the Provincial Examinations. The former take place in June. It is probable that I intended to use them for that Examination. Nothing he had any interest in. They were not used in the July Examinations at all, showing that I was very careful.

Q. You say on the 26th of January, 1873: "I accept your offer. Arithmetic Papers, (1st, 2nd, 3rd class) for Teacher's Examination and first and second years' answers to Arithmetic Papers will be required." You asked him? A. No. He offers to prepare the Arithmetic Papers.

Q. He accepted your offer? Was not that collusion between you one of the Central Committee and Mr. Teefy? A. I think not, for this reason.

Q. Do you attach the usual meaning to the word "collusion"? A. I think so.

Q. Will you swear that there was no collusion between you and Mr. Teefy? A. I think there was none. I will tell you why. I had two examinations in my hands that year—the Normal School in which neither he nor any other teacher could be interested, and the Provincial Examination; but, if he sent me any questions, it is likely I would take them for the Normal School Examinations. I had 30 out of 62 papers to prepare myself. If any one was justified in getting assistance I think I was then.

Q. You did not put "Teefy" in a little bracket, to show that they were taken from him, did you? A. I think not.

Q. Were you not as an Examiner taking those papers from Mr. Teefy, which you were expected to prepare? Were you not imposing a fraud on those who were employing you? A. I took no questions for the teacher's examination. No one in his senses will say that because there are two questions on a paper prepared by him, he prepared the paper.

Q. You say, "I accept your offer for Teacher's Examination Papers. A. He did not send them unfortunately. I will take questions from any one; but I use them discreetly, I hope.

Q. Are you not imposing a fraud on those who employ you? A. If I get the whole paper, not a question or two. If so, there is not an examiner who is not imposing a fraud on the public.

Q. You have tried to show that all examiners prig from each other? A. Yes. We can quote the Cambridge papers.

Q. How much do you get as examiner? A. Not nearly as much as Sandfield Macdonald gave me.

Q. You get $200? A. Yes, for that and all other matters connected with the Central Committee.

Q. If it is a case of universal crib, would it not be better to take the questions right out of the books? A. No. There has never been a paper which has gone out of my hands, which has not had some original questions. If I am required to set every question, I should require pretty high pay.

Q. On Feb. 7th. I think that is in regard to a pass paper? A. With reference to the University examination.

Q. You say, "Make up two or three stiff problems for first class Arithmetic Paper." "If I succeed, you need have no fear as to your prospects, and if I don't, I'll have influence at all events. Manilla is a mean place. I'll surely get you something better this year if possible." Was not that an attempt to corrupt that teacher? A. No. I think his letter of 1872 shows clearly enough that that was not the case. I have never promised any single teacher any assistance whatsoever with a view to get his assistance in any way.

Q. On the 17th of Feb., 1873, you say:—"Your aid is now a great favour." "I think I'll have influence enough to get you in. The appointment of Mathematical Masters and others will be largely influenced by our (my?) reports. I have given a highly flattering (just, too) report of your school." Why did you give too flattering a report of his school? A. I did not give a too flattering report.

Q. Just too flattering, I suppose? A. No. Just, also, it means.

Q. Do you mean to say that the report was just? A. Undoubtedly.

Q. If it was just, how could it be flattering? A. I should have said perhaps, a too favourable report. The letter was written in a hurry.

Q. You say also, "If I succeed Dr. R., there'll be no doubt about you. Perhaps you could aid me. Write Mr. O'Donohoe." Do you think it was a right thing to influence a teacher in that way, you occupying the high position you do? A. There was a warm personal feeling between Mr. Teefy, his father and myself, I thought it was right.

Q. Do you think it was right to bring a teacher in our Public School system into political manœuvring? A. I do not see anything particularly wrong about it.

Q. Did you ask him to influence Archbishop Lynch? A. I do not know. I should have endeavoured to secure the influence of Archbishop Lynch undoubtedly, through friends of mine.

Q. On the 8th of March, you say:—"Thanks for your kindness. The N. Schools cannot be long delayed. There will doubtless be other good positions ere long." Was that intended to corrupt Mr. Teefy? A. No, it was not; I had no such intention from beginning to end. I entered warmly into Mr. Teefy's behalf. I tried to promote his interest, and I did it a little more warmly than usual; I thought that he had been harshly treated in consequence of certain prejudices against him.

Q. On 14th March, you write:—"Thanks for the problems. Don't be discouraged. I think that ere long we shall have a place with $1,000 a year for you, and I have no doubt that when the Normal Schools are established I shall be able to get you a mastership." Was that to compensate him for supplying you with Examination Papers? A. No, not at all.

Q. In your letter of the 24th of April, 1874, you say:—"I acknowledge the force of your objection as to Dr. W.; I should prefer a different man myself, but don't know where to look for a man on whom the masters could unite. I have, as you know, not the least sympathy with Dr. W's bigotry, but it is desirable to have friends of University men in the Council, as they appoint to all important positions." Were you trying to pack the Council of Public Instruction? A. I think not; I was acting in the interest of the University of Toronto. The other Universities had their representatives elected.

Q. Did you expect to control Dr. W.? A. Not at all.

Q. Were you aiming to get the Council of Public Instruction within your grasp and influence? A. I was not quite so ambitious as that.

Q. Why would not another do? A. I do not think it necessary to answer that question.

Q. Is Professor Croft an eminent authority on Chemistry? A. I should think that he is an eminent practical chemist.

Q. Is Tate a high authority on Natural Philosophy? A. Yes.

Q. Look at question 8 on the Chemistry Paper for first-class teachers in July, 1874; and look at the note in Brown's note-book—Prof. Croft told us they were exactly the same? A. He must have made a mistake, I do not know how he could say that, there is a remarkable similarity.

Q. Compare question 9 with Brown's note-book? A. That is a common question in Tin, I think. I may tell you that I derived a great many questions from other Examination Papers.

Q. Look at the question in the June Examination Paper, 1874, on Ozone? A. If you asked anything about Ozone, you would have to ask it that way.

Q. How do you account for the similarity between that and the question in Brown's note-book? A. From the fact that the two questions were asked on Ozone.

Q. Look at question 11: Brown's note-book contains the same; they are identical. How do you account for that? A. I have derived most of the questions in Chemistry, in 1874, and 1875, and 1876, from University of London Papers, and other English text-books.

Q. Can you point out that question? A. I do not know that I can, just now.

Q. Look at the Physics Paper of July, 1874? A. I have not had time to examine or compare very carefully the asserted resemblances in that.

Q. How do you explain the resemblances between the question in Brown's note-book and the July Paper on Physics? A. I have heard the witnesses, but I have not followed them very fully, I can tell you the source whence I have derived most of these questions —from the University of London questions mainly, and from Thorpe's Problems, and standard works in Chemistry.

Q. Did you take any questions from the Edinburgh University Calendar? A. I do not remember.

Q. Have you a copy of that at home? A. I have not. I remember noting down a question or two from the Calendar in University College, but whether it was the Edinburgh Calendar or not, I cannot say.

Q. You did not take it from that? A. Not from this date I think; whether it was Edinburgh, Glasgow or London, I do not remember.

Q. Did you ever take any questions at all from Mr. Kirkland? Did you ever copy any questions or receive any help, from him? A. I have occasionally noted down a question or two of his selection, which I considered to be rather elegant.

Q. Have any members of Mr. Kirkland's family conveyed to you the points you should examine on? A. I think not.

Q. Never? A. No sir, I may mention that in consequence of deriving so many questions from other sources, there has been a resemblance in the papers, and after I returned from England, Mr. Kirkland called my attention to the fact, that there were some resemblances, and I stated then that I would not use any more University of London papers, and I have not, I have got them from text-books.

Q. You prepared the papers for 1876? A. Yes.

Q. How do you account for the similarity between the papers and Miss Montgomery's note-book? A. I set the questions on the perscribed course, and Mr. Kirkland taught on the prescribed course. If he teaches over the whole course, the greater must of course, include the less.

Q. It was proved that these were given specially? A. I do not think it was proved. If any examiner will set eight or ten questions on Physics or Chemistry, and a lecturer has gone thoroughly over the course. I will take any note-book and show by making selections, that they correspond exactly to the examinations.

Q. Look at the papers on Natural Philosophy for 1877? Did you take those questions from Kirkland's book? A. Some of them.

Q. From the book in proofs, or after it was published? A. I am not quite certain; a couple of them at all events were suggested from Kirkland's

Q. Did you not take seven from Kirkland's? A. No, I did not.

Q. Not the seven that were alike? A. No. Some of the seven I did not know were in Kirkland's until the memorandum was published in the *Mail*.

Q. The Arithmetic Papers, you took from your own book? A. I said that a couple of questions were suggested by my book. I generally have several books before me.

Q. When did Mr. Kirkland send you the proofs? A. From time to time.

Q. The moment it was found that you took the questions or some of them, from Kirkland's book, would it not precipitate the sale? A. I do not think it would precipitate the sale, when the examiner was found to have taken his questions from other sources as well. Teachers' Associations all over the country had asked for the publication of the book.

Q. You said you heard some talk about the similarity; are you not aware that it was a matter of common gossip for the last three or four years? A. No; I knew that, in 1874, an anonymous writer published a letter in the *Mail*, and I came out and challenged him to give the proofs.

Q. Did you not say, you prepared your own Examination Papers, recently? A. I did.

Q. Was that true? A. I think it was, from my stand-point, the charge was made in this way:—The writer had refereuce I supposed, to the collusion between Mr. Kirkland and me; and he referred to the memorandum, and I said I had set the Examination Papers, which was true, and literally true, because no one ever set an Examination Paper which I adopted.

Q. You say you got proofs of the Statics from Mr. Kirkland? A. Yes.

Q. Were you aware that book was the substance of his lectures to the students? A. I suppose it would very likely follow; I do not remember having any thought about it.

Q. You have said you got these proofs from Mr. Kirkland and took these questions? A. Yes.

Q. We have these letters to Mr. Teefy, showing that you got assistance from him when he was teaching three students: can you give the same answer to me now that you gave to Mr. Edgar, when he asked you if the charge of collusion was true? A. If collusion means that there was an understanding between me and any teacher or person interested in any candidates whereby such a one should have any advantage over others, I can answer as I did before.

Q. Can you repeat the answer in the negative? A. I say there was no such collusion, if my understanding of collusion is right.

Q. If the teacher and an examiner interchange confidences as to what the examination papers are to be, there is collusion? A. Certainly, if I give the teacher to understand there is going to be something.

Q. Did you not say you would use some of his teaching in your letters to Teefy, and you tell us you actually used his questions? A. I did not use any of his questions for any examination in which he was interested.

Q. In which he might have been interested? A. Yes, he possibly might have been.

Q. It was not his fault that his students did not come up here? A. He might have been scoundrel enough to give information to some party; if he had, no great evil would have followed, for two questions out of twelve are not many.

Q. This does not say anything as to the question of the collusion. Was not there collusion between you and Mr. Kirkland when you took his proofs and took questions from them? A. No, there was none; I am not sure whether it was from the proof or from the author's copy which was sent to me.

Q. There was none between you and Mr. Teefy, when you took his questions? A. His Lordship must decide on that, I think.

By Mr. Kirkland.

Q. Did I ever prepare, either in whole or in part, any of your examination papers? A. You did not.

Q. Did you, either directly or indirectly, give me any information previous to any of the examinations, that I could in any way use for the benefit of my pupils? A. I did not.

Q. Do you know where you got those two examples taken from the University of Edinburgh calender, or can you give any cause for their being there? A. I cannot say positively, I think that one involving the "return shock," is a natural one to be asked. I was surprised

to hear Prof. Croft say, he never heard it asked in connection with induction, the very thing it is connected with, very possibly, I noted down that among the number I noted down with reference to subsequent examinations.

Q. Where did you note a question or two from me? A. From your selection, once or twice.

Q. Did I know anything about it? A. No, I do not think that you did.

Q. You referred to a private conversation in January, 1877, when you returned from England. I called your attention to the fact that a large number of your questions in the 1876 paper were selected, and that as a matter of consequence, I had used some of them—what reply did you give? A. I stated the source from which I had been accustomed to borrow my questions.

Q. You would take care not to repeat it? A. I said I would endeavour to avoid even the appearance of evil, and would construct my questions from a different source.

By Mr. Hughes.

Q. If two books were authorized on the same subject, were we as particular in fixing the prices, as if only one was authorized? A. We were not.

Q. Where the public had a choice between two books, we were not particular in fixing the price? A. Certainly not.

Edward G. Cuthbertson, sworn:—

By Mr. Davin.

Q. Are you bookkeeper to Mr. Gage? A. Yes.

Q. Do the cheques of the firm pass through your hands? A. Most all the cheques.

Q. Have you paid Mr. Hughes any money? A. Yes.

Q. How much? A. I could not exactly say at present. I have not looked into the books to see.

Q. Have you brought your books? A. No.

Q. Did you pay him more than $50? A. I do not think that we did. I recollect $50; but I do not recollect more.

Q. You did not pay him $75? A. I do not think it—at least, not from present memory.

Q. Does Mr. Hughes go a good deal to your establishment? A. He goes occasionally; I cannot say, a great deal.

Q. Once a month? A. Yes, I suppose he is there twelve times within a year at any rate.

Q. Once a fortnight? A. I could hardly say.

Q. Does he ever speak with you about books? A. Not specially about books.

Q. About the management of the concern? A. No.

Q. What about? A. As an acquaintance, he passes the time of day and such things.

Q. Does he speak to you on business? A. No.

James Ratcliffe, sworn:—

By Mr. Davin.

Q. What are you? A. A student at present.

Q. Did you attend the Normal School during the Sessions of 1874 and 1876 and 1877? A. I attended during 1874, a short time during 1876, and no time during 1877.

Q. Did you go in for the examination in 1877? A. Yes.

Q. In 1874, did you hear any conversation in the class of Mr. Kirkland as to the similarity between certain questions he gave and the examination papers? A. Do you mean the whole year, because there are two sessions? A. No.

Q. Did you in 1876? A. Yes.

Q. Did you know a student named Barnes, who has been examined here? A. Yes.

Q. Did he say anything to you respecting the similarity? A. He did.

Q. What did he say?

The Commissioner overruled the question.

Q. You attended the examination of 1877? A. Yes.

Q. You did not study in Mr. Kirkland's class. A. No.

Q. Did you receive any hints as to what the Examination Papers would be from anybody attending his class? A. I do not know whether you would consider it hints on Examination Papers. I received hints from one who had attended his class—that is notes.

Q. Who was that? A. Miss Hunt.

Q. Did you go to her to find out what was given? A. Yes; and I got hints of the work that Mr. Kirkland had taken up within the last few weeks.

Q. Did she tell you what to look up? A. She mentioned certain points to look up.

Q. Did you find these points in the Examination Papers? A. With one or two exceptions we found them all.

Q. Did you first speak to Mr. Dickson about Brown's note-book? A. Yes.

Q. Before Mr. Dickson spoke to you? A. As far as I recollect, he did not know that Brown had the note-book until I mentioned it.

Q. And you spoke of the similarity? A. Yes; that I had noticed in the last examination.

By Mr. Kirkland.

Q. You say that you spoke to Miss Hunt? A. Yes.

Q. What did you ask her? A. I asked her for some of the main points that Mr. Kirkland had dwelt on during the last few weeks.

Q. What did she give you? A. In Chemistry, she said—Look up particularly all about the Atomic Theory.

Q. Had not you done that at Hamilton? A. No; I studied scarcely any chemistry at all.

Q. If you had been studying chemistry, would you not have looked up all about the Atomic Theory in preparing for the examination? A. It would depend on how thoroughly I went in.

Q. You were examined in 1874? A. In second-class.

Q. Do you know if that question is asked in the Papers of 1874? A. I do not know it.

Q. Look at the July Papers, first class of 1874; what is the last question on that Paper? A. "Give an outline of the Atomic Theory."

Q. So Miss Hunt told you to get up an old question? A. It appears on this Paper.

Q. If you had been preparing for first class, would you have looked over the back Papers? A. Yes.

Q. You would have got this question? A. Yes.

Q. There was nothing strange in telling you to look up that question? A. That was one.

Q. What was the next? A. All about arsenic.

Q. You have attended my lectures in the Normal School? A. Yes.

Q. Did we ever take up arsenic? A. The subject was taken up partly.

Q. Not very fully in the second edition? A. It was not very fully in the first edition while I was there; but I was only there part of the time.

Q. Does the question of arsenic occur in many of the back Examination Papers? A. I could not answer that?

Q. Does it occur in the paper which you have in your hand? A. Yes.

Q. So what you were told to get up would apply to 1874 as well as to 1877? A. Yes.

Q. Anything strange about that? A. No.

Q. What was the next point? A. The salt cake process.

Q. Do you know if that occurs in any of the preceding papers? A. I do not know.

Q. Is it a common question? A. Not as far as I have studied.

Q. But you have not studied Chemistry? A. Yes—a little.

Q. Did not you get it up? A. I never got it up in my life.

Q. What was the next? A. The usual impurities of water. These four were the points which she mentioned in Chemistry.

Q. Did you ever see that question before? A. Yes.

Q. Does it occur in many examination papers, do you know? A. I do not know.

Q. Is it one of Brown's notes that you refer to? A. I refer to no note except what she gave me verbally.

Q. Arsenic, the usual impurities of water, the salt cake process, and the Atomic Theory, are what she told you to get up? A. Yes.

Q. All of which occur in the back examinations? A. Yes.

Q. Is that what you came here to give evidence about? A. I came to give evidence as to the similarity between what she told me before coming up, and the Examination Paper.

Q. Would you ask these questions if you were teaching Chemistry? A. I never knew enough about it to teach it. I was struck by the fact that three of the four points should be on the Examination Paper, and make about fifty per cent. on the paper.

Q. How do you know that they would occupy fifty per cent.? A. Possibly fifty per cent. is a little high.

Q. Three questions out of how many? A. Ten; the atomic theory enters into the first three. It is the whole of the second one.

Q. Would you not expect that? A. The points she gave were in more than three questions.

Q. They are only points or heads to get up? A. They amount to more than that number of questions on the paper. The atomic theory is all the second, and the third of the first question.

Q. It is not the first at all? A. Is it not.

Q. Is atomic weight the same as the atomic theory? A. I took it thus far—that if we got up the whole of the atomic theory, it would include that.

Q. What is the atomic weight of copper? A. I do not know.

Q. Point out what connection the first question has with the atomic theory? A. It is the third of it, considering the atomic weights in connection with the atomic theory; if not, it is no part of it.

Q. You got up the atomic theory under her directions, did you not? A. I got up as many of the points as I had time for.

Q. Equivalent to molecular weights—is that atomic weights? A. No.

Q. Did you read up "Atomic, equivalent and molecular weights, give the atomic and equivalent weights of mercury, zinc, chlorine, iodine, sulphur, iron and copper?" A. I do not know whether I did or not.

Q. Did you read the answers to any of the second part of that question in studying under Miss Hunt's directions? A. I looked up the atomic weights of some of the chemical substances the night before the examination.

Q. Do you see any substance there that you looked up? A. I looked up all of them except iodine, so far as I remember.

Q. What is the atomic weight of sulphur? A. I do not know.

Q. You have forgotten? A. I never liked Chemistry or cared to study it, and I only crammed a little for the examination; I never remember it after it is over.

Q. Not much about it then? A. So long as I get through, I do not care on that subject.

Q. In Physics? A. We were to look up the Rheostat.

Q. Anything extraordinary in that? A. It is not contained in our authorised book at all. I thought it rather strange, she should mention that when it had to be got from another source altogether.

Q. The half of your book was not in your book? A. I do not know. I did not answer much of that paper. We had Home's Law, the Leyden Jar, the Rheostat, and the best way of arranging batteries so as to get the full benefit of the shocks. So far as I know, they were all the points mentioned in Physics and they were all on the paper.

Q. What was the number under which you wrote in the examination? A. 2,654.

Q. Did I not always consider you a good student? A. In mathematics, I suppose.

Q. I advised you? A. Certainly.

Q. Under Miss Hunt's direction, a man of your ability would make some progress ; how many marks did you make ? A. In Chemistry, 40 per cent.

Q. Was that anything extraordinary ? A. It was far better than I expected before I left Hamilton.

Q. With special directions ? A. I had not special directions before I left Hamilton.

Q. But you had afterwards ? A. Certainly. I considered when I left Hamilton that if I did quarter of the Examination Papers, I would do very well.

Q. Your particular grind did not make you much better ? A. It made me fifteen per cent. better on the paper.

Q. How did you do in Physics ? A. $32\frac{2}{3}$ per cent ; 49 marks out of 150.

By Mr. Davin.

Q. What was not in the text book ? A. The Rheostat.

Q. Miss Hunt gave you that ? A. Yes.

By Mr. Kirkland.

Q. What do you mean by the text-book. A. Balfour Stewart.

Q. Who set the paper on Physics ? A. Mr. Glashan.

Q. Not Dr. McLellan ? A. No.

George Paxton Young, recalled :—

By Mr. Hughes.

Q. Did the Central Committee ever take any steps to protect the public in fixing the price of text-books ; and if so, what ? A. They offered recommendations to the Minister with that view, and the following is a summary, which I have taken verbatim from a communication which I addressed to the Minister on the subject :—

" Before any work is authorized the Minister should be satisfied in regard not only to style of printing, accuracy and binding, but also as to the price at which the book is proposed to be retailed. For this purpose a copy of each edition of every work proposed to be authorized should be submitted for approval and the authorization of the book should be made conditional on the publishers coming under an agreement that it shall be furnished to schools at a price not exceeding a specified sample copy.

It would be well likewise to keep in the Depository a large stock of the books likely to be most in demand, and to make known through the *Journal of Education*, the prices at which they could be there obtained. This would provide really effective competition. The majority of the text-books used in the schools could be furnished through the Depository at considerably cheaper rates than the rates at which booksellers if freed from such competition, would be disposed to sell.

If these suggestions be adopted, and if the recommendation which the Central Committee have given ; that a variety of text-books be authorized in the leading subjects, so as to allow teachers the privilege of selection under certain limitations, be also adopted, it is believed that all that is possible will be accomplished in the way of securing school books at reasonable prices."

By Dr. McLellan.

Q. You have observed a point made against me, because I set a Natural Philosophy paper closely resembling the text-books. You have set papers in natural Philosophy for the same classes ? A. I have.

Q. Was it your custom to make the papers similar to the text-books ? A. I do not commonly refer very much to the text-books ; but I certainly in preparing my papers, framed them with the intention and the hope that they would be found to resemble very closely the sort of instruction which the students had received from good teachers. I hoped that there would be a resemblance ; and I intended that there should he, as far as I could bring it about, deliberately.

Q. You thought it desirable? A. I thought it most desirable, considering the exceedingly low attainments, especially of the majority of candidates for second-class certificates. I thought it unjust to do anything else.

Q. To deviate much from the text-books? A. No. I do not say that. I do not refer much to the text-books.

Q. But you must have kept the course? A. I kept the course in view; and knew what teachers dealing with these students, not very well instructed in these subjects, would deal with as the prominent points; and I framed my papers so as to bring about a similarity between my papers and—not any one teacher, but the general run of teachers.

Q. *A fortiori*, you would think it necessary to do that with the Intermediate Papers? A. Yes; decidedly. But not with first-class teachers.

Q. What is the second-class Natural Philosophy paper set for? A. The paper is for second-class teachers.

Q. Do you know it was set for the Intermediate alone, in the first place,, and that only by accident, it was afterwards used for second-class teachers? A. I am not sure of that. I dare say it was so.

Q. Do you know that Mr. Glashan was to set the second-class paper? A. I believe that is correct, though unless you brought it to my mind I would not have been perfectly certain of it.

By Mr. Kirkland.

Q. Mr. Davin urged something about collusion in that paper, but if the paper were set for intermediate candidates, would I be interested in the result of that class of candidates at all? A. The examination for second-class was the same. It comes to the same thing because we all understood the examinations to be the same; if the examination for intermediate had been distinct from that for second-class, you would not have been interested in that, as far as I see.

Q. When the paper was set, was it not understood that they were to be distinct altogether? A. It is perfectly possible; but if so, some other member of the Committee will be able to speak on that.

By Mr. Davin.

Q. What is Mr. Kirkland's salary. A. I do not know.

Q. Was his salary raised to your knowledge? A. I heard that it was; but I have nothing to do with it. We never recommend anything in regard to the salaries of Normal School teachers.

Q. You have heard it was? A. I have.

Q. How much—$300? A. I suppose I have heard the sum, but my impression is, that it is not so much as that; but the Central Committee have nothing in the world officially to do with the Normal School masters.

Q. If his salary was raised, it would be because of his success as a teacher? A. The Minister of Education is the best judge of that. I think it is likely. I think that the Minister would be acting very foolishly if he raised the salary of any master, who was not an efficient teacher.

Q. The only way in which he could know that he was efficient, would be the position taken by his students in the examinations? A. That is one way. He might know by report of the Principal, for instance.

Q. Or the Report of the Central Committee? A. They would only know by the result of the Examinations.

By Mr. Kirkland.

Q. Before my salary was raised was there any change of duty? A. There was some alteration, I think, in the subjects taught by the different masters in the Normal School. Dr. Carlyle used to teach certain subjects, and you others, and there was a change. I am speaking simply from rumor. It is only in that way, I know that your salary has been raised at all.

By Mr. Davin.

Q. You are Chairman of this Committee? A. Yes.

Q. A great deal of work seems to be done without your supervision? A. Very little. There has been a great deal of work, but on all the important subjects, I have given personal attention to it. Of course, a number of points require to be dealt with. The work must be distributed—some points given to some, and some to others; but all important points, I have given personal attention to; and even when a sub-Committee reported, I saw that it was in accordance with my own mind, before I consented to its being adopted.

Q. Is it true that each member of the Committee is a committee to report to the Minister on library and text-books? A. Yes; but not on text-books.

By Mr. Edgar.

Q. To the Minister? A. Each is a sub-Committee to sit in judgment on library and prize books; but it does not at all follow that this is ratified by the whole Committee in its report.

By Mr. Davin.

Q. In the Committee, it is a majority rule? A. Yes. There has very seldom been a vote—in not very many instances. The rule is, that the majority rule wherever there is want of unanimity.

James Vannevar, sworn:—

By Mr. Hughes.

Q. You are a retail bookseller? A. I am.

Q. You reside in Toronto? A. I do.

Q. About how long have you been a retail bookseller in Toronto? A. Ten or twelve years.

Q. Have you been in the habit of selling school-books during that time? A. Almost exclusively.

Q. Have you a list of the price of the authorized and other text-books for sale at the Depository Branch, Education Department? A. I have.

Q. Will you please state for the information of the Commissioner, whether prices on that list are higher or lower than the prices you were accustomed to receive up to the first of June this year? A. The prices mentioned here are lower.

By the Commissioner.

Q. Lower than what? A. Lower than the present rates.

By Mr. Hughes.

Q. The First Reader, part one; what was the regular retail price? A. Five cents.

Q. Second part? A. Ten cents.

Q. Second Reader? A. Twenty-five cents.

Q. Third Reader? A. I consider the regular retail price of a book, the price at which it is published—the price which the publisher puts on the book, on which there is always a trade discount. Forty cents was the regular retail price put by the publisher, but I sell them for thirty-five cents; and I have heard of them being sold as low as thirty cents, and in fact, I did it myself a year ago.

Q. Fourth Reader? A. Fifty cents is the regular public retail price.

Q. Fifth Reader? A. Sixty cents.

Q. Sixth Reader? A. Sixty cents.

Q. Companion to the Readers? A. Thirty cents.

Q. Lewis' "How to Read?" A. Seventy-five cents.

Q. English Grammar and Primer, by the Rev. R. Morris? A. Twenty-five cents. It was thirty cents before the 1st of June this year.

Q. Mason's English Grammar? A. $1

Q. Fleming's Analysis? A. $1.50.

Q. Miller's Analytical and Practical? A. 37½ cents.

Q. English Grammar for junior classes? A. 25 cents.

Q. Advanced Arithmetics, Smith and McMurchy? A. 50 cents.

Q. Elementary Arithmetic Smith & McMurchy? A. 25 cents.

Q. Hamblin Smith's Arithmetic? A. $1.

Q. Orr's Dominion Accountant? A. 50 cents.

Q. Abbott and Clark's Book Keeping? A. 70 cents.

Q. Hamblin Smith's Algebra? A. 90 cents.

Q. Loudon's Algebra for Beginners? A. 40 cents.

Q. Elements of Algebra, by Loudon! A. 75 cents.

Some discussion at this point took place, as to the effect of the witness' evidence.

The Witness:—I am giving what is supposed to be the retail price of the book, at which it is published.

By the Commissioner.

Q. What is the difference between the maximum and the minium? A. The book-sellers charge is the maximum price. Of course they have cause not to be very well pleased with the Depository in selling at these prices. I think that they do the book-sellers injustice in fixing these prices.

By Mr. Hughes.

Q. Is there in this list a single text-book that is not reduced in price at the Depository, below what it was sold for on the 1st of June? A. I know nothing of the Depository prices, except what I have here.

Q. Compare these with what was paid by the general public before the 1st of June. A. They are lower, for instance, Mason's English Grammar was always sold by me at $1. It is 3s. 6d. in England. It is placed here at 75 cents.

Q. Have you been in the habit of selling Mason's Grammar for the past few years! A. For the last three or four years.

Q. Can you state the number of Mason's Grammars that you have sold during the past two or three years. A. During the four years that I have been selling it the number has not been very large, because it is not an authorized book; and also because of the multiplicity of English Grammars. I suppose that I have sold forty or fifty, which I consider a very fair number, for a grammar out of the usual routine of works, which are applied for.

Q. You sold these by retail? A. Yes. Single copies.

Q. Take the maximum price—English Grammar Primer: what was the price? A. 30 cents.

Q. The maximum price now is 25 cents? A. Yes.

Q. Mason's English Grammar was? A. $1.00

Q. Reduced to? A. 75 cents.

Q. Fleming's Analysis was $1.50? A. Yes.

Q. It is now $1.00? A. Yes.

Q. Orr's Dominion Accountant formerly retailed at what price? A. My impression is that it was 75 cents. I could not say positively, but it was much higher than at present.

Q. At present it is? A. 40 cents.

Q. Loudon's Algebra for Beginners is marked 40 cents? A. That has been the price since it was published.

Q. No change? A. No change.

Q. Freeman's European History—what was the price? A. It has been always $1.00.

Q. History of England, by Edith Thompson? A. That has been 75 cents.

Q. How Plants Grow? A. $1.00; no change.

Q. Oliver's Lessons in Botany, $1.20? A. Our regular retail price is $1.35.

Q. Chemistry Primer formerly ? A. 30 cents.

Q. Physical Geography Primer, 25 cents—what was the price ? A. 30 cents.

Q. Introductory Text-Book, 65 cents ? A. 75 cents.

Q. Statics, by Hamblin Smith, marked here 80 cents and 75 cents ? A. Those were 90 cents.

Q. Hydrostatics, by Hamblin Smith ? A. 90 cents.

Q. Mechanics ? A. That is comparatively a new book.

Q. Were you before the 1st of June in the habit of selling any book, whose price is marked on this list, at as low or lower rate, than is marked here ? A. I was not.

Q. Was the retail price of several books higher than it is here ? A. It was.

By Mr. Davin.

Q. When a book is authorized, I suppose you sell it more than before it is authorized ? A. I cannot say that I do, because often times I take a risk and get out certain books from England, and consequently have the exclusive sale of them ; but when an authorized book comes out it gets into the hands of all book-sellers, and my sales are rather diminished.

Q. Of course you know that if the sale of a book is largely increased, you can afford to sell it at a less price. A. I suppose so.

Q. You say that you sold 40 or 50 of Mason's Grammars during four years ; your business is principally with University students, is it not ? A. I do a good deal with University students and also with teachers throughout the country ; there were very few Mason's Grammars bought by University students; they were more generally bought by teachers.

Q. Are you the only school-book-seller who devotes his attention almost exclusively to school-books in Toronto ? A. I do not know that I can say that ; perhaps I do as fully as any one.

Q. Hamblin Smith's Statics was to be 90 cents ? A. Yes.

Q. Is it the same price now ? A. It has been reduced, I think, to 75 cents.

Q. Since it was authorized ? A. Yes ; in regard to that I do not begin to sell one-twentieth part of the number that I used to sell before; I used to sell them by the thousand at one time.

Q. You know Kirkland's book ? A. Yes.

Q. Do you sell many ? A. A good many.

Q. Do you think it dear at $1.00 ? A. It is much cheaper than Hamblin Smith's was at 90 cents.

Q. How do you know ? A. Judging from the size, as many do, in regard to the price of a book.

Q. Mason's English Grammar at 75 cents, is not that the price that it costs the buyer in England ? A. The Canadian edition is sold exclusively.

Q. What was the book selling for in England ? A. 3s. 6d. sterling—what we would sell here at $1.00.

Q. Seventy-five cents is enough for that book, is it not ? A. It was not for the English edition.

Q. For the book as published here ? A. I think that it is a very fair price.

Q. Has it not been always the case, that people apply to the Depository to get books cheaper than in the shops ? A. I regret to say that is the fact.

Q. It is no new thing since June ? A. I did not think that they had gone so extensively into the general books.

Q. At the Depository the books have always been sold cheaper ? A. I imagine that they have.

By Mr. Hughes.

Q. Were the text-books kept for sale in the Depository to the general public before this year ? A. That is something I could not say anything about.

JOHN M. BUCHAN, sworn :—

BY MR. EDGAR.

Q. You are a member of the Central Committee? A. I am.

Q. I wish to ask you as to your knowledge of the truth or untruth of these two charges, which you have heard read. On these two points I wish you to tell all you know? A. I have nothing to tell.

Q. Do you know of any ring in the Central Committee? A. I have no reason to believe that there is any ring.

Q. As to that question of collusion, what do you say? A. I know nothing about it. I have no reason to believe that there is any between any member of the Committee and any teacher.

BY MR. DAVIN.

Q. Are you related to Mr. Kirkland? A. My wife is a relation of Mr. Kirkland's wife.

Q. Are you one of the editors of the *Canada School Journal*? A. I am a Provincial Editor.

Q. Are you paid? A. No.

Q. You do your work for love, too? A. Well, I have not been able to discover yet what the duties of a Provincial editor are.

Q. Have you had any conversation with Mr. Gage about the text-books? A. None to my knowledge—that is, none bearing on this inquiry; Mr. Gage may have told me he was going to publish such and such a book.

Q. You meet him occasionally? A. Very seldom.

Q. He tells you what books he is going to publish? A. He may have; I have no distinct recollection that he ever did.

S. ARTHUR MARLING, sworn :—

BY MR. EDGAR.

Q. You have heard the charges read? Do you know anything of the truth or falsity of these charges? Do you know if they are true? A. I have not the slightest knowledge about either of them.

BY MR. DAVIN.

Q. Are you a member of the Central Committee? A. I am.

Q. Do you know Mr. Gage? A. I have not the pleasure of Mr. Gage's acquaintance.

Q. Do you remember when Hamblin Smith's Arithmetic was authorized? A. I am not aware that it is authorized.

Q. It is authorized conditionally? A. I am not aware that the conditions have been complied with.

Q. Have you seen it advertised nevertheless as being authorized? A. I have not seen it advertised as authorized.

Q. Do you remember when Mason's Grammar was before the Central Committee? A. I have some recollection of it.

Q. Do you know Mr. Houston? A. I have a slight acquaintance with him.

Q. Did you have any conversation with him about Mason's Grammar? A. Never about that or any other text-book.

JOHN C. GLASHAN, sworn :—

BY MR. EDGAR.

Q. You are a member of the Central Committee? A. I am.

Q. Do you know whether there is within the Central Committee a ring, having dis-

honorable relations with the publishing house of Adam Miller and Company, of Toronto? A. I do not.

Q. Do you know anything of the kind? A. I know nothing of the kind.

Q. Do you know whether in the preparation of Examination Papers, there has been collusion between any members of the Central Committee and any teachers interested in the work or result of the examinations? A. I do not.

Q. Do you know of any fact that would lead you to believe there has been? A. I know of no fact that would lead me to believe there has been.

By Mr. Kirkland.

Q. Did you look over the Examination Papers, in Chemistry and Physics, for 1876? A. Those in Physics, I did. I may state that I looked over the Physics because they were sent from the Department. I had no authority direct from the Central Committee.

Q. Did you see anything in looking over that, which would lead you to expect that the teachers had access to the questions? A. I did not see anything. I can state some observations I made at the time. I do not wish to give any opinions. Question No. 4, in Physic's Paper, in 1876, is a very peculiar question. It does not belong to the course. It is partly geometrical optics, and partly physical optics. All the other questions are either on the principles which should be taught in this course, or on very common experiments, except one, which was on a very prominent experiment at the time. I exclude the answers of three candidates which were sent after the others. I had read the others, and noted these things, and paid no attention to the answers of these other three—Samuel McAllister, Bertha Symmes, and a third, whose name I do not know. A number of candidates attempted to answer question No. 4, but not one of them even understood it. Question No. 1, is, perhaps the most important question that can be asked in Heat at the present time. It is easy following Tyndall, to give, not what is asked for here, but a general experiment, that a student of Elementary Physics can deduce more easily; but an experiment that could not possibly be an actual experiment. The experiment asked for here, is a long and difficult one, very fully treated in the book. Not one candidate answered this question. They gave the general experiment, which was perfectly useless, and for which I gave them nothing. With regard to the answers to the other questions, some candidates answered one, and some answered another, but no one answered the whole paper. No one answered number 4, or number one; but no one answered all the remaining eight questions. I had to raise the marks of the candidates.

Q. What was the general character of the standard? A. It would have been low. I think it was low as it was.

Q. Do you think it possible that a teacher could have drilled up his students on that paper; and that they could have passed such an examination? A. My opinion is, that no candidate had been drilled up on that paper.

Q. What is the reason why you think so? A. Because if any candidate had been drilled on that paper, they would have shown by their answers their acquaintance with the points, and they all show only a very elementary acquaintance, and in some cases a mistaken acquaintance. They misunderstood the question.

By Dr. McLellan.

Q. Are you acquainted with the work of Clark-Maxwell's here referred to? A. Matter and Motion. I am. I have read it carefully.

Q. Is that an elementary treatise in the ordinary sense? A. It is not. It assumes a very considerable knowledge of mathematics, that is not generally called elementary.

Q. You have read the work of Todhunter? A. Yes.

Q. When he speaks of Elementary Natural Philosophy, does he mean the same as when we use the term? A. He is speaking of an entirely different subject from what Clark Maxwell's treats of. There is no comparison between Clark-Maxwell's book and any other work on Physics or Dynamics, that I know of.

Q. Could any one set a question for Intermediate and Second Class from that book? A. In the First Class Natural Philosophy Paper of 1877 you will find the question from it.

Q. You thought that you would try them once, did you? A. The last part of question 3 is taken from that book. It is the authorized problem, I found worked in the book, which only contains a few problems.

Q. That was for First Class? A. Yes.

Q. Did any one answer that question? A. No—not even the candidates who had the papers three weeks before the Examination.

Q. The book is established on Newton's, is it not? A. It contains part of the third and second sections of Newton's work without the first section.

By Prof. Young.

Q. Read the first line in the article from *Nature* that Mr. Davin quoted from? A. "Clark-Maxwell's book is not very easy reading."

Q. Look at that? A. Art. 94. I know that article, "Centrifugal Force." "This is the force which must act on the body M in order to keep it in the circle of radius V in which it is moving with velocity V. The direction of this force is towards the centre of the circle."

Q. Do you think that a Second Class student would be astonished at that? A. Tate was astonished at the peculiar use of the words, "Centrifugal Force." He alludes to it in the review.

James Hughes, sworn :—

By Mr. Edgar.

Q. You are one of the Central Committee? A. I am.

Q. Do you know if it is true that there is within the Central Committee a ring, having dishonourable relations with the publishing house of Adam Miller and Company, of Toronto? Do you know anything that would lead you to believe that such is the fact? A. I do not.

Q. Do you know that in the preparation of Examination Papers, there has been collusion between certain members of the Central Committee and teachers interested in the work or result of the examinations? Do you know that, or do you know anything that would lead you to that conclusion? A. I do not know it; and have no reason to believe that such is the case.

Q. Who are the members of the Central Committee? A. Prof. Young, Chairman, and three High School Inspectors, Dr. McLellan, Mr. Buchan, and Mr. Marling; and three Public School Inspectors, Mr. Glashan, of Ottawa; Mr. J. J. Tilley, of the County of Durham; and Mr. G. W. Ross, late Public School Inspector for Lambton, and myself.

By Mr. Davin.

Q. You are one of the editors of Adam Miller? A. What?

Q. You are one of Adam Miller's editors? A. I am one of the Editorial Committee of the *Canada School Journal.*

Q. Then you are one of the editors of Adam Miller? A. I am one of the Editorial Committee, and they publish the *Canada School Journal.*

Q. Are you the author of "Hughes' Complete Composition Blanks?" A. Yes.

Q. What is the retail price of that? A. Twenty cents, I believe.

Q. How much were you paid by Mr. Gage for this book produced? A. That is number three. There are three in the series; and for the preparation of the matter, the method and the proof reading, and everything connected with the three, I received the sum of seventy dollars, not as a royalty, but as a lump sum.

Q. You have no royalty? A. I have no interest whatever in the sale of that or any other book. I never had.

Q. How much are you paid as one of the editors of the *Journal?* A. I am not paid

in any way, except by the thanks of the teachers throughout the country, which I hope to receive. I have no interest in it in any way whatever.

Q. Are you not puffed in the *Journal?* A. Not that I am aware of.

Q. Are any of your colleagues puffed in the *Journal?* A. My editorial colleagues—I do not remember any of their works that have been puffed, except one work of Dr. McLellan's; and there is an article copied from the *Globe*, which appears in the *Journal* relating to it.

Q. Read that paragraph by Mr. Kirkland on Hamblin Smith's Algebra, in the October number? A. This is in the advertising part:—"It is the text-book on Algebra for candidates for second-class certificates and for intermediate examination. Not the least valuable part of it is the Appendix by Mr. Baker."

Q. Read the other on Hamblin Smith's Statics? A. "There are few books in elementary mathematical science that I can more confidently recommend. The arrangement of the 'book work' is admirable, its treatment clear, and the subject made as elementary as it can be, consistent with a scientific treatment of it. In such a study, the working of problems will excite the same pleasure and impart to the subject the same interest that the conducting of experiments does in chemistry. The examples at the end of each chapter are well selected—simple at the beginning, progressive, and ending with problems of sufficient difficulty."

Q. Who is that written by? A. Alfred Baker.

Q. One of the editors of the *Journal?* A. Yes.

Q. We were told by one of the editors that it was an arrangement that the editors were not to puff each other in this Journal? A. It is an arrangement—that is an advertisement by the conductors of the *Journal*. It was an arrangement that nothing of the kind should be done in the editorial columns. That is an advertisement. Any publisher may advertise his books in the *Journal*.

Q. Nevertheless, it is one of the principal editors of the staff puffing another; and even on the principle of scratch me, scratch you, Mr. Kirkland puffs Baker, and then Baker puffs Mr. Kirkland? A. I believe those paragraphs were written before the *Journal* had an existence.

By Mr. Kirkland.

Q. Does that article of Baker's refer to anything in the part of the book that I had anything to do with? A. I never saw the book enough to know.

Q. Have the editors anything to do with the advertising columns? A. We have nothing to do with them. The editorial members of the *Canada School Journal* distinctly informed Mr. Gage that no part of the *School Journal* properly including editorial columns was to be used as an advertising medium for his books; and he was to be in the same position as any other publishers; and it is only on these terms that I will be connected with it.

Q. But any publisher can puff his works in the advertising columns as much as he likes? A. Yes.

The evidence was then closed; and the Inquiry was adjourned until Wednesday next, for the purpose of hearing arguments.

Wednesday, November 21st, 1877.

The Inquiry opened at 11 o'clock.

Hon. Adam Crooks was recalled, and said:—When I referred to any similarity between Dr. McLellan as an examiner, and the Books of Problems, the similarity I should disapprove of was an undue, improper similarity, and the result of design, not something which could be explained by other circumstances.

By Mr. Edgar.

Q. That would apply to whatever expression of opinion you gave on that subject? A. It was in regard to that class of questions that was being interrogated. I answered in regard to what we all understood to be the purport of the questions of the learned counsel.

Mr. Davin, Professor Young, and Dr. McLellan then addressed the Commissioner on the bearing of the evidence taken, and Mr. Davin having replied to the arguments of the other gentlemen, who had addressed his Lordship.

The Commission was closed.

(No. 12.)

Report and evidence taken before the Royal Commission appointed to inquire into the value of the Central Prison Labour. *(Printed for distribution to Members only.)*

RETURN

To an Address of the Legislative Assembly to His Honour the Lieutenant-Governor praying His Honour to cause to be laid before the House a return of all correspondence between the Government and the License Commissioners for the County of Carleton, or any other parties, with reference to the granting of a tavern license in the Township of March, after the adoption in said Township of a By-law for the purpose of prohibiting the sale of intoxicating liquors under the Temperance Act of 1864.

Presented to the Legislative Assembly, by command of His Honour the Lieutenant-Governor.

ARTHUR S. HARDY,
Secretary.

PROVINCIAL SECRETARY'S OFFICE,
Toronto, 17th January, 1878.

To the Hon. OLIVER MOWAT, M.P.P,
Attorney General, &c., Toronto.

The petition of the undersigned duly qualified Municipal Electors of the Township of March, in the County of Carleton, and Province of Ontario,

HUMBLY SHOWETH AS FOLLOWS:

1. Under and in accordance with the requirements of "The Temperance Act of 1864," upwards of thirty qualified municipal electors of the said township, by a requisition signed by them, proposed a by-law for adoption by the electors of the said township, and required that a poll be taken to determine whether or not the electors would adopt the by-law for prohibiting the sale of intoxicating liquors and the issuing of license therefor within the said township.

2. On or about the 10th day of July, A.D. 1876, a poll was taken and the said by-law so proposed was adopted by the said electors by a majority of ten.

3. A copy of the said by-law so adopted and a copy of the requisition therefor, duly certified by the clerk of the said township, and a certificate of the fact of its adoption was duly communicated to the Collector of Inland Revenue within whose official district the said township is situate, and all steps and proceedings necessary to give force and validity to the said by-law was taken and the said by-law is now, and was at the time the license hereinafter complained of was issued, in full force and effect.

4. On or about the first day of May last, 1877, a tavern license to be used and enjoyed in the said Township of March was granted and issued by the Board of License Commissioners

for the County of Carleton, to one William Boucher, and the said Boucher is now and has been since about the first day of May last, carrying on the usual business of a tavern-keeper in the said Township of March, and has the said license (which is apparently complete and valid) exposed in the bar-room of his tavern in the said township, and the said Boucher is now and has been since the said first day of May last selling intoxicating liquors by retail, under the sanction and authority of the said license.

5. That the said license was issued, to the said Boucher, and in the said township, contrary to the provisions of "The Temperance Act of 1864," and to the present Act in force in Ontario, referring to the sale of fermented and spirituous liquors.

6. That the said license was granted and issued to the said Boucher by the said Board of License Commissioners with knowledge that the said "The Temperance Act of 1864" was in full force and virtue in the said township, and that the same had been adopted by a majority of ten.

7. That an application has been duly made to the License Inspector for the said County of Carleton to institute proceedings to have the said license quashed, but he has refused to do so, or to take any action in the matter.

8. That your petitioners feel deeply aggrieved in the premises by the action and conduct of the Board of License Commissioners for the County of Carleton and of the License Inspector for the said county.

Your petitioners therefore pray :—

1. That you would be pleased to cause an investigation to be made of the matter referred to in this petition.

2. That some steps be taken to have the said license quashed if found to be illegally issued.

3. That the parties who shall have been found to have violated the existing license laws be dismissed from their office or appointment.

4. That such other action be taken in the premises as to you may seem meet or necessary.

And your petitioners as in duty bound will ever pray :

G. H. Morgan,	William Hopewell,
Irvine Vance,	John Gourlay,
Thomas Vance,	Hugh Gourlay,
Joseph Hurston,	J. H. Richardson,
Robert Ervin,	William McCurdy,
George Gilchrist,	Thomas James,
Samuel Gilchrist,	Richard Buris,
John G. Street,	Benjamin Buris,
James McCord,	Richard Richardson,
Thomas McCord,	Thomas Richardson,
Samuel Mooney,	William Richardson,
William Kennedy,	Ferdinand Richardson,
Hugh Gainsforth,	Thomas Buris,
William Gow,	Thomas Kennedy,
Frederick Richardson,	Joseph Davis,
William Gainsforth,	John J. Younghusband,
James Erskin,	G. H. Younghusband,
Hugh Connolly,	Joseph Smyth.

PROVINCIAL SECRETARY'S OFFICE, LICENSE BRANCH,
Toronto 13th November, 1877.

SIR,—I am directed by the Hon. the Provincial Secretary to advise you that a petition signed by a number of ratepayers in the Township of March, in the County of Carleton, addressed to the Hon. Attorney-General has been received by him.

A complaint is therein made that the Dunkin Act being in force in that township the board illegally issued a tavern license to one Boucher, who under the authority of such license has continued to sell liquor by retail since the first day of May last.

You are requested to report on the matter at your earliest convenience.

I have the honour to be Sir,
Your obedient servant,
HENRY TOTTEN,
For the Secretary.

H. D. Smith, Esq.,
Inspector,
Merrickville.

MERRICKVILLE, Nov. 17th, 1877.

SIR,—I have the honour to acknowledge receipt of your favour of 13th inst., calling for a report of facts connected with the issuing of a tavern license in the Township of March, County Carleton, where it is claimed a prohibitory by-law passed under the Dunkin Act is in force.

In compliance therewith, I beg leave to submit this enclosed report together with other papers bearing upon the case.

I have the honour to be, Sir,
Your obedient servant,
H. D. SMITH.

Hon. Provincial Secretary, Toronto.

To the Hon the Provincial Secretary of Ontario.

SIR,—I have the honour to submit the following report of facts connected with the issuing of a tavern license for the current year in the Township of March, County of Carleton, where it is claimed the Dunkin Act is in force.

It was a matter known to the commissioners by common rumour that some kind of a prohibitory by-law had been passed in said township, but nothing official through the Collector of Inland Revenue or directly from the promoters of the measure had reached them.

The enclosed papers were, however, submitted to the Board on the day of their meeting, by Mr. Boucher, who was apparently under the impression that the whole proceeding was rendered invalid by reason of the Council failing to take action in the matter. It was the opinion of the Board, however, that these papers pretty clearly established the fact that the law was fairly complied with, down to the point of certifying and communicating to the Collector of Inland Revenue, but they considered themselves bound by the provisions of Section six and eight of the Temperance Act, non-compliance with which they decided had rendered the by-law up to that time inoperative.

They, therefore, considered it their duty to grant Mr. Boucher a license.

All of which is respectfully submitted.

H. D. SMITH
Inspector.

TOWNSHIP OF MARCH.

The undersigned qualified municipal electors of the Township of March, hereby require that a poll be taken in terms of the Temperance Act of 1864, to determine whether or not the qualified electors of the said municipality will adopt, under authority and for enforcement of the said Act, the by-law following, which we hereby propose for their adoption, to Wit:

The sale of intoxicating liquors and the issuing of licenses therefor, is by the present by-law prohibited within the Township of March, under authority and for enforcement of the Temperance Act of 1864.

Witness our hands, this third day of June, in the year of our Lord one thousand eight hundred and seventy-six :

G. H. Morgan,	William Gow,
Irvine Vance,	H. Connolly,
Robert Erwin,	Francis Bradley,
Joseph Hurston,	Hugh Gainsforth,
John Kelly,	Joseph Davis
Thomas McCord,	Thomas O'Hara,
James McCord,	Thomas Armstrong,
Daniel Lahy,	David McMurty,
George Gilchrist,	Pat. Burke,
Francis Johnston,	Alex. Gow,
Samuel Mooney.	Thomas Kelly,
William Kennedy,	Jacob Logan,
Nathaniel Connolly,	Robert Duncan,
Joseph Gainsforth,	John Rea,
William Hopewell	William Gainsforth,
Joseph Smith,	M. W Connolly.
William Colbrot,	

To the License Commissioners of the County of Carleton and all others whom it may concern.

I, the undersigned Township Clerk of the Township of March, in the County of Carleton, do hereby certify that early in the month of June, 1876, I received the petition of some of the Electors of the Township of March, a true copy of which is hereunto annexed; that upon receipt thereof I caused notices to be given, a true copy of which is also subscribed to the copy of said petition : That the council of the township were not consulted about submitting the by-law, and did not order the submission to the vote of the electors.

As clerk, I thought it was my duty to submit it. A vote was taken on it and it was carried by a majority of ten, on the tenth of July last.

The council of the Township did not afterwards pass the by-law nor take any notice thereof, and there never was any notice taken thereof in any of their proceedings either before its submission to the electors or afterwards.

Dated at March, this sixteenth day of April, A.D. 1877.

I have the honour to be, Sir,
Your obedient servant.

Mr. Boucher asked me to sign the foregoing as Township Clerk of March. I read it over. It is perfectly correct, but as township clerk I have no instructions to sign it.

G. W. Monk.

Notice

Is hereby given that a poll will be taken in accordance with the above requisition on Monday the 10th day of July next, at the Town Hall in the Township of March, commencing at 10 o'clock in the forenoon.

G. W. Monk,
Township Clerk.

March, June 10th, 1876.

PROVINCIAL SECRETARY'S OFFICE, LICENSE BRANCH,
Toronto, November,23rd, 1877.

SIR, - I am directed by the Hon. the Provincial Secretary, to acknowledge receipt of the explanation of the Board having reference to the issue of a license to one Boucher, in the Township of March.

The Board have evidently acted in good faith in supposing that until the notices mentioned in section six and eight in the Temperance Act of 1864 were given, the by-law could not take effect, and consequently, licenses could be issued as usual.

In Blakely and Lake the Court have recently held that it is not now necessary to give notice to the Collector of Inland Revenue ; under this ruling, therefore a license should not have issued in "March," and although issued it is absolutely void.

The Board will therefore be good enough to call upon Mr. Boucher to return the license upon the understanding that he is to be refunded the value of the unexpired term thereof, and should take all proper proceedings to cancel it. It is of no practical use to Boucher, as the sale of spirituous liquor by him, even while possessing it is illegal.

I have the honour to be, Sir,
Your obedient servant,
HENRY TOTTEN,
For the Secretary.

H. D. Smith, Esq.,
Inspector,
Merrickville.

PROVINCIAL SECRETARY'S OFFICE, LICENSE BRANCH,
Toronto, November 23rd, 1877.

SIR,—In answer to the petition signed by you and others, addressed to the Hon. the Attorney General, having reference to the issuing of a tavern license to one Boucher, in the Township of March, in which you allege the Dunkin Act to be in force.

I am directed by the Hon. the Provincial Secretary to say that explanations were asked from the Board of Commissioners, who replied, that although the by law had been carried at the polls, no notice thereof had been given to the Collector of Inland Revenue in accordance with section six of the Temperance Act of 1864, and as section eight of the same Act provided that as "regards the prohibition of issue of licenses, every such by-law shall come into force from the day of communication thereof to the Collector of Inland Revenue," the Board concluded that until such notice had been given the by-law could not take effect.

The language of section eight is very explicit, and any Board of Commissioners would be very apt to conclude that until the Collector of Inland Revenue had been notified, licenses could be issued, but the Court has recently decided that it is not now necessary to notify the Collector of Inland Revenue. Of this decision it is not probable the Board had any knowledge.

The Board has been advised that a license should not have issued, and directed to request Mr. Boucher to return it with a view to its being immediately cancelled.

As the Government is of opinion that the Board acted in good faith and upon their view of what the law actually required, it is not deemed advisable to take further proceedings as requested by the petition, and it is hoped this will be entirely satisfactory to you and your petitioners.

I have the honour to be, Sir,
Your obedient servant,
HENRY TOTTEN,
For the Secretary.

G. H. Morgan, Esq.,
Township of March,
County of Carleton.
Try, March P. O.

MERRICKVILLE, Dec. 5th, 1877.

SIR,—I have the honour to enclose two resolutions of the Board of License Commissioners for County of Carleton.

The first was passed at the time of granting license, the second on the 4th inst.. from which you will perceive that the Commissioners repudiate the views attributed to them in my report on the Boucher case, I frankly acknowledge that in said report, with the view of maintaining the reputation of the Board, I gave my own views instead of theirs, for which I am very properly snubbed.

I have the honour to be, Sir,
Your obedient servant,
H. D. SMITH.

Hon. Provincial Secretary, Toronto.

Copy of resolution passed by the Board of License Commissioners for the County of Carleton, December 4th, 1877.

Moved by Judge Ross, seconded by Mr. Dawson, that the License Commissioners for the County of Carleton, when they determined that a license should be granted to William Boucher, of the Township of March, in the said county, for the license for 1877–8, had no knowledge except rumour and some unofficial papers which the commissioners had no means of knowing whether genuine or not, nor have they now any knowledge that the Dunkin Act was or is in force in the said township.

That the License Inspector for the said county misapprehended the views of the commissioners in stating in his report of the 17th November, 1877, that "It was the opinion of the Board, however, that these documents pretty clearly established the fact that the law was fairly complied with down to the point of certifying and communicating to the Collector of Inland Revenue," whereas in fact the commissioners were not of said opinion.

That the commissioners are of opinion that the proper course to be pursued by those who contest the legality of the license issued to said Boucher, is to take the proper proceedings at law against him to test the validity of the license.

Carried.

A true Copy,
H. D. SMITH,
Secretary.

Copy of resolution passed by the Board of License Commissioners for the County of Carleton. April 30th, 1877.

Moved by Mr. Dawson, seconded by Judge Ross, that as it appears from the certificate of the Township Clerk of the Township of March, laid before the License Commissioners for the County of Carleton, that the Township Council of the Township of March, did not take any action in the matter of the proposed by law for prohibiting the sale of intoxicating liquors, that a license be granted for the license year 1877–8 to William Boucher of March Corners.

Carried.

A true Copy,
H. D. SMITH,
Secretary.

THE HON. THE PROVINCIAL SECRETARY, LICENSE BRANCH,
Toronto.

DEAR SIR,—In reply to your communication of 23rd November, as respecting the issue of a license for the Township of March, in which township the Dunkin Act is in force, I beg to say :

1. That the by-law passed under authority and for enforcement of the Temperance Act of 1864 was duly communicated by delivery of a copy thereof to Martin Battle, the Collector of Inland Revenue, on the 11th day of August A.D., 1876.

2. That there appears endorsed thereon in the handwriting of the Clerk of the Township of March, the following words: "The By-law proposed by the foregoing requisition for adoption by the Municipal Electors of the said Township of March, has been by them duly adopted in terms of the Temperance Act of 1864."

Witness my hand, this 10th day of March, A.D. 1876.

G. W. MONK,
Tp. Clerk.
March.

3. That when Mr. Boucher applied to the License Commissioners for his License there was produced before the Commissioners a copy of the by-law, and at the time of the issue of such license, the Commissioners were thus made aware of the existence and validity of the Dunkin Act in the Township of March.

4. Those interested in the enforcement of the Act in the Township of March were given to understand by the License Commissioners when they complained of the issue of the license that it was no part of the business of the Commissioners to go to Mr. Battle to see if the by-law was duly filed, and that as no certified copy of the by-law was filed with the License Commissioners they had issued the license to Boucher.

5. The License Commissioners have at a meeting held in the City of Ottawa, on the 5th day of December, instant, refused to comply with the suggestion of the Government in the matter, or to request that Mr. Boucher deliver up his license to be cancelled.

6. Your petitioners although they feel themselves deeply aggrieved herein, would be satisfied with the cancellation of the said license, and would earnestly request that the Government would take such means to secure that end as may by them be deemed most expedient.

I have the honour to be, Sir,
Your obedient servant,
(Signed) G. H. MORGAN,
On behalf of Petitioners.

South March, 12th Dec., 1877.

Toronto, Dec. 19th, 1877.

SIR,—The License Inspector has forwarded to this department a copy of the resolution passed by the License Board of Carleton, on the 4th inst., relative to a license granted to one Boucher in the Township of March, in which it is stated as a ground for not cancelling the license "that the board had no knowledge, except by rumour, of the passage of the Dunkin Act in that Township."

The Board no doubt had the same knowledge of the passage of the Act as had the public who are expected to observe it, and as no distinction is made by law as to knowledge between the board and the public, I fail to see that a sufficient reason is by the resolution assigned either for the granting of the license originally or for declining now to cancel it.

Should the Board insist upon declining to do what appears to be their plain duty, such steps will be taken as will accomplish the result and vindicate the law.

Where the people have thought fit to impose upon themselves the Temperance Act of 1864, this Department cannot consent to be its principal violator but on the other hand is bound to do what reasonably may be done to uphold that law in common with other laws relating to the same subject, and the undersigned cannot concur in the suggestion that it is the duty of the Government or of the officers of the Government, first to issue the license in violation of the law and then of Government officials to prosecute with a view to determining whether the action taken has been legal or otherwise.

I have the honour to be, Sir,
Your obedient servant,
ARTHUR S. HARDY.

To His Honour Judge Ross,
Chairman of License Board, Ottawa.

RETURN

To an Order of the House, dated February 26th, 1877, for a Return of all Accidents and Casualties (whether to life or property) which have occurred on the Railways in the Province of Ontario, under the jurisdiction of the Legislature of the said Province, for the years 1874, 1875, and 1876, which shall set forth :

1st. The names of the respective Companies.

2nd. The causes and nature of such accidents and casualties.

3rd. The points at which they respectively occurred, and whether by day or night.

4th. The full extent thereof and all the particulars of the same.

By Command,
ARTHUR S. HARDY,
Provincial Secretary

PROVINCIAL SECRETARY'S OFFICE,
Toronto, 21st January, 1878.

1st.—NAMES OF THE RESPECTIVE RAILWAY COMPANIES.

Brantford, Norfolk and Port Burwell.
Cobourg, Peterboro' and Marmora.
Hamilton and North Western.
Kingston and Pembroke.
London, Huron and Bruce.
L'Orignal and Caledonia.
Midland.
Port Dover and Lake Huron.
Toronto, Grey and Bruce.
Whitby, Port Perry and Lindsay.
Toronto and Nipissing.
Victoria.
Wellington, Grey and Bruce.

20th December, 1877.

BRANTFORD, March 31st, 1877.

C. T. GILLMOR, Esq.,
Clerk Legislative Assembly, Toronto.

DEAR SIR,—In reply to your circular of 29th, I beg to make the following returns of accidents, as required.

1st. Brantford, Norfolk and Port Burwell Railway.

2nd. The only casualties during 1876 have been the killing of five head of cattle and six sheep; no accidents of any kind to passengers or employees having occurred.

3rd. The cattle, &c., killed on the track at different points were in all cases in the day time.

4th. The above is a full account of all.

Yours truly,
W. J. IMLACH,
Secretary.

COBOURG, PETERBORO' AND MARMORA RAILWAY AND MINING COMPANY,
COBOURG, March 30th, 1877.

CHAS. T. GILLMOR, Esq.,
Clerk, Legislative Assembly, Toronto.

DEAR SIR,—In reply to your communication of yesterday, I have to report as follows:—

Sept. 4th, 1874.—An Indian named Shippigo killed in Harwood yard by cars passing over him, at 10 p.m., he being intoxicated, and sleeping on the track under a loaded car which was being attached to freight train.

May 24th, 1875.—Henry Thomas, aged 14, killed on wharf at Cobourg by lumber train, he, with other boys being at play, fell from pile of lumber as train passed down.

May 15th, 1876.—Grand Trunk freight train ran into lumber train at Cobourg Junction, causing damages to amount of $800. No one hurt.

Sept. 27th, 1876.—McDonald killed on track at Cobourg, trying to get on moving train. Aged about twenty years, and subject to fits.

Trusting this report meets your requirements,

I am,
Yours faithfully,
P. R. BONNER,
Superintendent.

RETURN of Accidents and Casualties which have occurred in Canada on the Line of the Hamilton and Lake Erie and Hamilton and North-Western Railways during the years 1874, 1875 and 1876.

This Return is made in compliance with an Order of the Legislative Assembly of Ontario, March, 1877.

Date.	Time of Day or Night.	No. of Train.	Description of Train.	Place of Accident.	Name of Person Injured.	Whether Passenger or Employee.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
YEAR 1874.--Nil.									
YEAR 1875.									
March 16..	2.00 P.M.	No. 4	Mixed	Half-mile north of Ballsville Station	John Wilson Browne.... Age 15	Passenger ..	Attempted to walk along top of train and fell between two freight cars	Killed..	Accidental death by falling between the cars
May 20 ..	2.30 P.M.	.....	Yard Engine.	H. & L. E. R. Wharf at Hamilton	Frederick Ecclestone.... Age 8	Neither	Fishing at wharf close to track and got run over by freight cars while attempting to get out of way of yard engine shunting	Killed..	Accidental death by being run over by cars
YEAR 1876.									
April 28..	7.30 P.M.	No. 6	Express	9 miles south of Hamilton, betweeu Rymal and Rentonville Stations	Thomas English ..... Age 45	Neither	Supposed to have fallen asleep on track while under the influence of liquor	Killed..	Accidental death by being run over by cars on H. & N. W. R.

KINGSTON AND PEMBROKE RAILWAY COMPANY,
SECRETARY AND TREASURER'S OFFICE,
KINGSTON, CANADA, Dec. 22nd, 1877.

The Clerk of the Legislative Assembly, Toronto.

SIR,—Your favour of the 20th to hand. Last April, I furnished Mr. Brydges, General Superintendent Government Railways, with the information you now ask upon a form sent me for that purpose. I do not remember ever having received a similar application from you. Only one accident occurred on this road during the years 1875-6—in 1874 it was under construction. In 1876, Francis Dumaine fell between the cars when in motion on the afternoon of Nov. 13, at Kingston, and broke his arm. Should you require this information on a form, if you will send me one, I shall be pleased to give the matter my immediate attention.

I am, Sir,
Your obedient servant,
GEO. OSBORNE,
Secretary.

LONDON, HURON AND BRUCE RAILWAY,
HAMILTON, April 10th, 1877.

CHAS. T. GILLMOR, Esq.,
Clerk Legislative Assembly,
Toronto.

SIR,— In reply to your letter of the 29th March, addressed to the President of this Company, I beg to inform you that no accident or casualties have occurred on the L., H. & B. Railway since its opening.

Yours obediently,
CHAS. PERRY,
Secretary.

OTTAWA, 31st March, 1877.

CHAS. T. GILLMOR, Esq.,
Clerk Legislative Assembly,
Ontario.

SIR,—I have the honour to acknowledge the receipt of yours of the 29th instant, and in reply I have to state that the L'Original and Caledonia Railway has not been completed, and that there were no accidents on the road during the season of 1876.

I remain,
Yours, &c.,
E. MCGILLIVRAY

THE MIDLAND RAILWAY OF CANADA.
GENERAL OFFICES, PORT HOPE, April 17th, 1877.

CHARLES T. GILLMOR, ESQ.,
Clerk of the Legislative Assembly of Ontario,
Toronto.

SIR,—I have the honour to submit you a statement of accidents and casualties on the Midland Railway for the years 1874, 1875 and 1876 in accordance with the order made by the Legislative Assembly of Ontario.

Your obedient servant,
A. HUGEL,
President.

March 6th, 1874.—Engine and three empty platform cars collided with five empty platform cars at Millbrook station in day time. Cause, misplaced switch. Damage, broke draw heads on four cars and punched hole in the tender of engine.

April 22nd, 1874.—Engine on mixed train ran off track one mile north of Lindsay, breaking two truck springs, ash pan, centre pin, tender brake and cylinder cocks. Cause, bad joint and rail; in day time. Detained train three and a half hours.

April 23rd. 1874.—Box car on freight train ran off track one quarter mile north of Reaboro. One truck badly broken. Cause, wide gauge; in day time. Detained train three hours.

April 30th, 1874.—Coach, smoking caboose and three box cars on mail train off track about two miles north of Millbrook on Peterborough branch. Cause, track spread, ties rotten; day time. Cars considerably damaged.

May 5th, 1874.—Engine on wood train ran off track at Lindsay. Cause, switch open. No damage; day time.

May 11th, 1874.—Caboose car on freight train backed into the river at Lindsay swing-bridge. No damage; day time. Cause, carelessness of train men.

May 23rd, 1874.—Engine and six cars of lumber on freight train were thrown into the ditch about two miles north of Franklin. Cause, rail removed from the track by some unknown person or persons. Day time. Line blocked for seven hours.

June 30th, 1874.—Two cars on freight train ran off track half mile south of Franklin, badly breaking two trucks. Cause, broken wheel. Day time.

July 17th, 1874.—As a special freight train was passing Bethany station, Silas Dickson, one of the trackmen, attempted to get on front end of van and fell on track, two wheels passing over his right leg, above the knee. Train was running about five or six miles per hour. Time, 9 A.M. He died the following day at 3 P.M.

March 18th, 1875.—Two cars on mixed train ran off track about six and a half miles north of Port Hope. Cause, broken rail. Day time. One car slightly damaged. Train detained two hours and a half.

March 22nd, 1875.—Tender and eleven cars on wood train ran off track at switch at Nassau Mills. Cause, pin out of bottom of switch rod. Day time. Seven cars badly damaged.

April 5th, 1875.—Box car on mixed train ran off track about two and a half miles north of Franklin. Cause, frost heaving track. Night time. One truck broken. Train detained two hours and a half.

July 8th, 1875.—Mixed train ran over and killed John Corrigan, about nine miles south of Orillia; he was lying across the track, between the rails, with his head on rail, boots off, supposed to be asleep. Time, 7 A.M.

August 6th, 1875.—As firemen's excursion, special from Lindsay, was about a mile and a half south of Millbrook, Louis Truscott, while walking over train, fell between two platform cars, and eight cars ran over him, killing him. Time, 1.15 A.M.

September 11th, 1875.—Two cars on mail train thrown off track. Cause, cow falling under train after being struck on road crossing by engine. Day time. One truck under each car broken.

October 12th, 1875.—John Mimms, conductor on mixed train, was killed by striking his head against the second telegraph pole, north of Beamish's bridge, near Port Hope. Time, 8.30 A.M.

February 8th, 1876.—John McLean, brakeman on mixed train, got two fingers on right hand broken while coupling cars at Port Hope. Time, 3 30 P.M.

February 10th, 1876.—Seven cars on mixed train ran off track about two and a half miles north of Omemee. Cause, broken rail. Cars loaded with grain in bulk. Three cars badly damaged. Line blocked for twenty-one hours. Day time.

May 8th, 1876.—Engine and tender, baggage car and two freight cars, ran off track about half-mile north of Oakwood. Time, 3 P.M. Cause, rotten stringer on cattle guard.

June 30th, 1876.—Joseph Mimms, brakeman on mixed train, got three fingers on left hand broken while coupling cars at Millbrook station. Day time.

August 14th, 1876.—Engine of mail train ran off track in Peterborough yard, caused by misplaced switch. Day time. Detained train two hours.

September 6th, 1876.—Eight loaded cars on mail train ran off track mile and a half north of Reaboro, five of them badly smashed. Cause unknown Day time.

September 20th, 1876.—Platform car on mail train struck a little boy on crossing at Uhthoff. Day time. Badly hurt, but subsequently recovered.

September 26th, 1876.—Mail train ran four cars off track at Beaverton station. Cause unknown. Day time. Cars considerably damaged

October 4th, 1876.—Loaded car on mail train lost front pair wheels out of front truck, about three miles north of Orillia. Cause unknown. Day time. Detained train two hours and a half.

December 23rd, 1876.—Nine cars and van on wood train ran off track about three-fourths of a mile north of Bethany. Cause, broken rail. Time, 7.30 A.M. Van turned over on its side, seven section men, conductor, and two brakemen considerably cut about face and head. Line obstructed about three hours and a half.

PORT DOVER AND LAKE HURON RAILWAY COMPANY.

CHARLES T. GILLMOR, Esq.,

DEAR SIR,—I beg to submit the following information in reply to your circular of the 29th ult:—

No. 1. James Benley, a labourer in the ballast gang, while in the act of throwing stones at cattle on the road, fell between two cars, and died in a few minutes after. This occurred near Simcoe, in the month of August, 1875.

No. 2. John Sullivan, in same gang and near the same place, attempted to get on the pilot of the engine while in motion, fell and lost a leg. This occurred in September, 1875.

No. 3. Hugh Dodds, a brakesman, while coupling cars in the Woodstock yard, got his hand bruised in August, 1876. Off work three days.

No. 4. John Crawford slipped while coupling cars in same yard, in November, 1876. Hand bruised. Off work one week.

No. 5. Same brakesman, in January, 1877, slipped while going to oil engine; fell on the oil-can, injuring one eye. Was off work ten weeks. This occurred at Stratford.

All the above occurred in the day-time.

I have the honour to be,
Your obedient servant,
R. W. SAWTELL,
Secretary.

Woodstock, April 13th, 1877.

THE TORONTO, GREY AND BRUCE RAILWAY.
SECRETARY-TREASURER'S OFFICE,
TORONTO, 14th September, 1877.

CHAS. T. GILLMOR, Esq.,
Clerk, Legislative Assembly.

SIR,—In compliance with the order made by the House, as contained in your letter of 29th March, 1877, addressed to the President of this Company, I now beg to hand you return of accidents on this road for the years 1874 1875 and 1876

Yours truly,
W. SUTHERLAND TAYLOR,
Secretary Treasurer.

RETURN of Accidents which have occurred on the Toronto, Grey and Bruce Railway, during 1874, 1875 and 1876.

Date.	Night or Day.	Description of Train.	Place of Accident.	Passenger or Employee.	Name of Person Injured.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
1874.								
Jan. 13	Day..	Yard engine..	Toronto	Employee ..	Ed. McGany	Run over while repairing car	Leg severed, died three hours later	Accidental death
March 17	" ..	Freight.....	Weston	" ..	Wm. Bradley....	Fell between cars on duty	Leg sevcred and back hurt, died April 3	
April 2	" ..	"	Dundalk	.....	Hannah Smith ..	Sat down on track in face of train	Killed.....	Came to her death by willingly and of her own accord remaining on track and allowing train to pass over her
" 30	" ..	"	Markdale	Employee ..	Geo. Brown	Coupling cars	Arm crushed, recovered..	
May 16	" ..	Passenger....	Toronto	.....	— Brown.....	Tried to jump on train in motion	Head struck by step of car, hurt badly	
August 20	" ..	Yard engine..	Toronto	.....	— Strain	Was fishing on dock, car ran over	Leg crushed in two places	
Sept. 25	" ..	Construction.	Harriston	Employee ..	Geo. Harris	Struck by iron rail that turned in car	Killed instantly	
" 29	Night	Freight.....	Shelburne	" ..	— Mickle	Engine thrown off track by cow on road	Killed.....	Accidental death
October 21	Day..	Passenger ...	Crossing between Bolton and Mono Road	.....	— Wilkinson....	Came in contact with train	Killed.....	Came to his death by coming in contact with train
Nov. 11	" ..	" ...	Five miles north of Shelburne	Employee ..	Wm. Thorpe.....	Engine lever sprang back striking head	Killed.....	
1875.								
Jan. 16	" ..	Freight.....	Dundalk	" ..	Wm. Hendry....	Coupling cars	Crushed, recovered.....	
" 13	" ..	Ballast	Toronto	.....	John Gray	Struck by engine in crossing	Killed.....	Accidental death
April 6	Night	Freight.....	Kleinburg	Employee ..	— Carberry	Fell between cars	Killed.....	Accidental death
May 28	"	"	Carleton.....	" ..	D. Roberts	Fell between cars	Arm badly crushed, recovered	
July 19	"	"	Humber Summit..	" ..	J. Troyer.....	Coupling cars	Arm broken, recovered ..	
1876.								
Jan. 7	Day..	"	Kleinburg	" ..	John Grady	Fell between cars	Both feet cut off, recovered	
June 9	" ..	"	Between Dundalk and Shelburne	" ..	J. Sheppard	Shifting timber	Leg broken, recovered with loss of leg	

RETURN of Accidents and Casualties which have occurred on the Whitby, Port Perry and Lindsay Railway, for the years 1874, 1875 and 1876.

Date.	Cause and Nature of Accident.	Place of Accident.	Day or Night.	Name of Person Injured.	Extent of Injury and Particulars.
1874.					
July 13	Brakes failed to act	Brooklin	Day	None	None to persons ; engine of timber train struck passenger car, slight damage to car and engine
	Slipped off car	Port Perry	"	John Collins	Foot crushed, slipped from car in shunting
1875.	Nil.				
1876.					
March 3	Truck wheel of engine broke, which broke the rails, allowing cars to leave the track, engine remained on track	Near Manchester	"	Aaron Ross (passenger)	Slight cut on the head
				I. J. Davis (employee)	Back injured, laid up 8 or 10 days
				Wm. White "	Slight cut on the face; baggage car in which the persons injured were seated turned over on its side ; cars damaged
August 10	Coupling cars	Port Perry	"	J. W. Curtis	Two fingers injured, slight
" 17	"	"	"	J. Bennett	One finger injured, slight
November 11	"	"	"	F. Brooks (boy, aged 15 years)	Chest crushed, died in five hours ; no inquest; his brother (a brakeman) and engine driver warned him not to go near the cars ; he attempted to couple engine to cars unknown to them, and was caught

Whitby, April 6th, 1877.

JOHN J. ROSS,
Secretary.

The Toronto and Nipissing will not furnish any return.

CHARLES T. GILLMOR,
Clerk Legislative Assembly.

Jauuary 18th, 1878,

VICTORIA RAILWAY, GENERAL MANAGER'S OFFICE.
LINDSAY, 24th December, 1877.

SIR,—I beg leave to acknowledge the receipt of your letter of the 20th instant, requesting a statement of all accidents which have happened on the Victoria Railway, and, in reply to inform you that on the night of the 10th November, 1876, a man named Samuel Niven, while under the influence of liquor, either fell, or lay down and went to sleep on the track at Kinmount, and was killed by a construction train. No inquest was deemed necessary by the Coroner in attendance.

The above mentioned accident is the only one which has occurred on our line.

I am, Sir,
Your obedient servant,
JAMES ROSS,
General Manager.

Charles T. Gillmor, Esq.,
Clerk Legislative Assembly,
Toronto, Ont.

THE WELLINGTON, GREY AND BRUCE RAILWAY,
HAMILTON, ONT., CANADA, April 10th, 1877.

SIR,—I beg to enclose a return of accidents and casualities which have occurred on this Railway during the years 1874, 1875 and 1876, as requested in your letter of the 29th March, addressed to the President of this Company.

Yours obediently,
CHAS. PERRY,
Secretary.

Chas. T. Gillmor, ESQ.,
Clerk Legislative Assembly,
Toronto.

RETURN of Accidents and Casualties which have occurred in the years 1874,

Date.	Day or Night.	No. of Train.	Description of Train.	Name of Conductor.	Name of Engineman.	No. of Engine.	Place of Accident.
1874.							
August 24	Day	Un	known				Palmerston
October 3	"	7	Mixed	Lawless	Gibbs	248	Fergus (near)
1875.							
March 29	"	4	Accommodation.	Peckham	Barnes	183	Brussels
June 7	"	4	"	"	Caron	131	Elora (near)
July 9	"						Supers siding
"	"						
" 10	"	10	Freight	Drewry	Lyons	204	Guelph
October 27	"	4	Accommodation.	Peckham	Caron	149	Henfrys (near)
November 6	"	4	"	Jenney	Clemmison	147	Paisley (near)
" 17	"	5	Freight	Carter	James	130	Brussels
1876.							
March 22	"	5	"				Lucknow
June 2	"	2	Accommodation.	Lilles	Caron	149	"
September 7	"	17	Gravel train	Brown	Trimble	220	Fergus (near)
November 4	"	5	Mixed	Snyder	Mottershead	218	Gowanston

Canada on the Line of the Wellington, Grey and Bruce Railway, for 1875 and 1876.

Name of Person Injured.	Whether Passenger or Employee.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
Aaron Tremaine	Wayfarer	Horse took fright from cars	Collar bone broken	
J. Mitchell	"	Run over by train, lying on track	Fatally injured	Accidental death, no blame attached to Co.
Mr. Styles	Passenger	Run over by wheel of car	Toes crushed	
Wm. Craig, 2½ years old	Son of Trackman	Struck by locomotive of train	Killed	That death was caused by being struck by locomotive of train, and was purely accidental
T. McDermott	Labourer	Run over by lorry	Leg broken	
J. Long	"	Run over by lorry	Ribs broken	
C. Waldron	Brakeman	Run over by cars	Killed	That deceased came to his death while coupling cars, having had his foot caught in the frog of the track
Mrs. Srigley	Passenger	Car running off track	Slight bruise on arm and shoulder	
Jacob Greane	Wayfarer	Run over by train	Killed	Company exonerated from blame
James Gregg	Brakeman	Coupling cars and fell in cattle guard	Arm badly crushed	
D. Todd	Warehouseman	Run over by car	Foot crushed	
— McLeod	Wayfarer	Struck by engine of train	Killed	Accidental death
E. Carey	Brakeman	Train running off track	Killed	Edward Carey came to his death on Sep. 7th, 1876, by being run over by part of a gravel train, and that said death was purely accidental and no blame can be attached to any person
John Taggart	Passenger	Jumping from train in motion	Shoulder strained	

CHAS STIFF,
Superintendent.

(No. 15.)

Correspondence between George O. Hays and others, and the Government, or any of their officials, relating to the discovery of gold on the west half of Lot No. 9, in the 9th Concession of the Township of Marmora, and also in reference to the claims of the discoverers, and to the subsequent purchase and sale of such lands. (*Not Printed.*)

(No. 16.)

Correspondence relating to the application of the Reverend J. W. R. Beck, for indemnity in respect of the purchase of Lot No 6, second broken front Concession of Haldimand; also copy of so much of the Return from the Crown Lands Department to the Registrar of Northumberland, pursuant to Con. Stat. U. C., cap. 89, sec. 80, as relates to the lot. (*Not Printed.*)

BINDING SECT. AUG 2 3 1961